This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

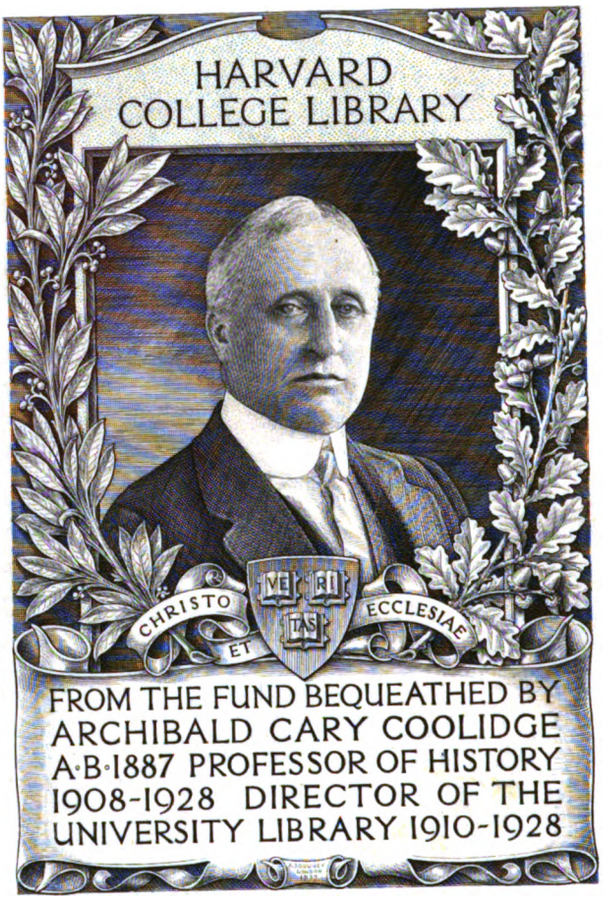
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Eng 1389.07.5F



Digitized by Google

Digitized by Google

Digitized by Google

ROYAL COMMISSION ON MINES.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON MINES,

WITH INDEX AND APPENDICES.

VOLUME I.

Presented to both Houses of Parliament by Command of His Majesty.

LONDON:
PRINTED FOR HIS MAJESTY'S STATIONERY OFFICE,
BY WYMAN AND SONS, LIMITED, 109, FETTER LANE, E.C.

And to be purchased, either directly or through any Bookseller, from
WYMAN AND SONS, LIMITED, 109, FETTER LANE, FLEET STREET, E.C.; and
32, ABINGDON STREET, WESTMINSTER, S.W.; or
OLIVER AND BOYD, EDINBURGH; or
E. PONSONBY, 116, GRAFTON STREET, DUBLIN.

1907.

[Cd. 3549.] *Price 5s. 7d.*

EYRE & SPOTTISWOODE, WESTMINSTER.

Digitized by Google

Eng 1389.07.57

HARVARD COLLEGE
MAY 29 1939
LIBRARY
Coolidge fund
(3 vol)

Digitized by Google

ROYAL COMMISSION ON MINES.

CONTENTS.

	PAGE
List of Witnesses	v
Minutes of Evidence	1
List of Appendices	345
Appendices	349
Index	413

LIST OF PLATES.

Number of Plate.	Description.	Page.
I and II	Arrangement for collecting dust in screen rooms	103
III	System of Timbering in a North-east Lancashire Colliery	104
IV	Fans and Pipes for exhausting dust from screens	152
V	Dust-tight Tub in use in a Yorkshire Colliery	153

337. 1500—Wt. 6710. 6/07.—Wy. & S.

Digitized by Google

Digitized by Google

ROYAL COMMISSION ON MINES.

LIST OF WITNESSES.

Name.	Description.	Questions.	Page.
ATKINSON, JOHN BOLAND - -	H.M. Inspector of Mines for the Newcastle District.	8588–9459	291
ATKINSON, WILLIAM NICHOLAS	Superintending Inspector of Mines for the Cardiff and Swansea Districts.	5668–6564	219
BAIN, RICHARD DONALD -	H.M. Inspector of Mines for the Durham District.	6565–7548	244
DELEVINGNE, MALCOLM - -	Principal Clerk, Home Office - - -	1–421	1
GERRARD, JOHN - - - -	H.M. Inspector of Mines for the Manchester and Ireland District.	1864–2520	96
GRAY, FREDERICK AUGUSTUS -	H.M. Inspector of Mines for the Cardiff District.	7549–8587	268
HALL, HENRY, I.S.O. - - -	H.M. Inspector of Mines for the Liverpool and North Wales District.	1302–1863	73
MCLAREN, ROBERT - - -	H.M. Inspector of Mines for the East Scotland District.	2521–3412	122
MARTIN, JOSEPH SAMUEL, I.S.O. -	H.M. Inspector of Mines for the Southern District.	422–1301	39
ROBSON, JOSEPH THOMAS - -	Late H.M. Inspector of Mines for the Swansea District.	4247–4958	173
RONALDSON, JOHN MARTINE -	H.M. Inspector of Mines for the West Scotland District.	4959–5667	195
STOKES, ARTHUR HENRY - -	H.M. Inspector of Mines for the Midland District.	9460–10167	315
WALKER, WILLIAM - - -	H.M. Inspector of Mines for the York and Lincoln District.	3413–4246	147

Digitized by Google

Digitized by Google

MINUTES OF EVIDENCE

TAKEN BEFORE THE

ROYAL COMMISSION ON MINES.

FIRST DAY.

Wednesday, 27th June 1906.

PRESENT:

Lord MONKSWELL (*Chairman*).
Sir LINDSAY WOOD, Bart.
WM. ABRAHAM, Esq., M.P. (Rhondda).
F. L. DAVIS, Esq.
ENOCH EDWARDS, Esq., M.P.
THOMAS RATCLIFFE ELLIS, Esq.
JOHN SCOTT HALDANE, Esq., F.R.S.
ROBERT SMILLIE, Esq.

S. W. HARRIS, Esq. (*Secretary*).

Mr. MALCOLM DELEVINGNE called and examined.

Introductory.

Mr. M. Delevingne.

27 June 1906.

1. (*Chairman.*) I believe you are the head of the Parliamentary and Industrial Department of the Home Office?—That is so.

2. And that is the Department that deals with mining questions?—That is so.

3. I understand you are commissioned by the Home Office to open the case for them, and give the reasons why they consider that this Commission is desirable?—Yes.

4. Will you please state your case in your own way?—Would it be convenient if I gave first a short sketch of the present legislation affecting Mines, and the present strength of the inspectorate and the growth of the inspectorate?

5. Yes. Begin by telling us the present Acts governing the industry, the strength of staff, and growth of staff?—Coal Mines are at present regulated by the Coal Mines Act, 1887, which is the principal Act, but that was amended by the Act of 1896 in regard to certain matters affecting safety, and on smaller points by the Act of 1894, which dealt with checkweighers; by the Act of 1900, which prohibited the employment of boys below ground under the age of 13; by the Act of 1903, which introduced some further regulations as to certificates of competency of managers, and by the Act of 1905, which also dealt with checkweighing. I may say metalliferous mines are regulated by the Act of 1872, as amended by the Act of 1875, in regard to the matter of Annual Returns; by the Slate Mines (Gunpowder) Act of 1882, and by the Act of 1900, as regards employment of boys below the age of 13 underground. Perhaps I should mention here, too, that certain class of quarries also come under the jurisdiction of the mines inspector by virtue of the Quarry Act, 1894: but I understand that quarries are outside the scope of your Lordship's Commission. In all three cases there are, in addition to the statutory provisions contained in the Act itself, numerous regulations for the industry which have been established as Special Rules under the powers conferred for that purpose by the Acts, and which have the force of law. The present staff of inspectors consists of 12 inspectors in charge of districts, and 26 assistant inspectors. Will the Commission care to have a short sketch of the growth of the inspectorate?

Growth of Inspectorate.

6. I think it would be desirable?—The first inspector was oppointed after the passing of the Act of 1842, which prohibited the employment of women and girls in mines. In 1850 and 1852, after a Committee of Inquiry of the House of Lords in 1849 had recommended the adoption of a general system of inspection, 6 inspectors were appointed at a salary of £400 a year each. In 1855, after another Act was passed greatly extending the powers of inspectors, 6 more inspectors were appointed, all private practice was forbidden, and the salaries were raised from £600 to £800 a year. In 1872 metalliferous mines were brought under regulation, and two more inspectors were added for their inspection. In the same year the legislation for coal mines was also amended and consolidated, and soon afterwards 12 assistant inspectors were appointed, to secure more efficient inspection. To this number 7 more were added in 1884. No addition to the staff followed the important Consolidating and Amending Coal Mines Act, 1887, which was passed after the Inquiry of the Royal Commission on Accidents in Mines, but two more assistants were added in 1892, and in the same year one assistant was substituted for one inspector-in-charge. In 1894 the inspection of quarries over 20 ft. deep was added to the inspectors'

Digitized by Google

Mr. M. Delevingne.

27 June 1906.

duties by the Act of that year, and four more assistants were added in that year, two of them especially with the view to quarry inspection. On the retirement of Sir Clement Foster, the Inspector-in-Charge of the metalliferous district in North Wales, in 1901, that district was abolished and absorbed in the other districts, and that led to a reduction of one in the number of inspectors in charge of the districts. I might perhaps say that my evidence will relate chiefly to Coal Mines: metalliferous mining is now comparatively unimportant as compared with coal mining, and only a few questions have arisen in recent years with regard to it. I may say the most important of those was the question of Miners' Phthisis in Cornish and Ganister Mines, which was inquired into by Dr. Haldane, and has already been dealt with by Special Rules.

7. Has there ever been a Principal Inspector of Mines?—Never. For some time one of the senior Inspectors of Mines received an allowance of £100 a year for acting as adviser to the Secretary of State on mining matters, but he held no position of supervision or superiority over the other inspectors.

8. I understand that certain instructions have from time to time been issued by the Secretary of State to these inspectors and assistant inspectors of mines and quarries. These documents, I may add, are confidential documents, only one copy is issued, I understand, to each inspector and assistant inspector, but I have had the advantage of looking over these instructions myself, and it seems to me that perhaps they might be useful as forming the basis of questions that some of the Commissioners might like to put to the witnesses. I wish to know whether the Home Office would have any objection to every Commissioner having a copy of these instructions, understanding, of course, that they are private documents, and if they ask questions which are based upon any information in those instructions they do not mention the source whence their questions are derived, but merely put it as coming from themselves?—The Home Office, I think, will have no objection to that at all.

Duties of Home Office Inspectors.

9. You wish to tell the Commission about the administration of the Mines Act?—The duty of enforcing the provisions of the Mines Acts devolves primarily upon the Secretary of State, who is empowered by the Acts to appoint inspectors. In addition to that the owners and agents and managers in charge of mines are made responsible by the Act for the enforcement of the statutory provisions and rules in the mine itself. A very important power is also given by Section 49 of the Coal Mines Act, 1887, to the workmen employed in any mine to inspect the mine on their own account. I might perhaps also say that on two minor points, the protection of the public from danger of unfenced shafts and the provision of sanitary conveniences at the surface works at coal mines where women are employed, powers are given to the Local Authority of the district where the mine is situate. For the purpose of the Home Office inspection the whole of the country is divided into 12 districts, each of which is placed under the charge of an Inspector of Mines, with one or more assistants to help him. The duties assigned to the inspectors are, in general, to enforce, under the instructions of the Secretary of State, the Acts relating to mines and quarries, with some minor duties under the Truck Acts, the Education Acts and the Employment of Children Act. Shortly, the duties of the inspectors may be grouped under five heads:—(1) Visits to mines and quarries for the purpose of seeing whether the Acts are complied with; (2) Attendance at inquests on fatal accidents which have occurred in mines and quarries; (3) Prosecutions of owners, or agents, or managers of the mines, or officials of mines, for breaches of the Acts; (4) The preparation of an Annual Report to the Secretary of State, and also the preparation of Special Reports that may be called for by the Home Office, and—this is a very important duty—the collection and tabulation of the statistics for the district. Lastly, general correspondence and conferences with the Home Office and with the owners and other persons interested. Of these, of course, the first—that is the actual visits to mines and quarries—is by far the most important, and in regard to it full instructions have been issued to the inspectors by the Secretary of State, which I should like to refer to later. To assist the inspectors-in-charge in the clerical work of their district, each inspector-in-charge receives a small allowance for clerical assistance of £25 a year.

Working of present system of inspection.

10. I believe the Home Office are not entirely satisfied with this system of inspection. Can you say in what respects they consider it might be amended?—Each inspector in charge of a district is responsible directly to the Home Office for the management of his own district; he refers all questions of difficulty and importance to the Secretary of State for decision, and, as I say, makes an annual report of his work. On the other hand, he is an expert adviser, and the whole body of inspectors are the expert advisers of the Secretary of State on all mining matters, and are consulted by him on all questions affecting their duties and the working of the Acts. I might say that the inspectors meet at the Home Office once each year to discuss the questions referred to them by the Secretary of State, also questions suggested by themselves; but at other times in the event of the Secretary of State wishing to consult the inspectors on any important subject, the only way to do so is either to issue circular letters requiring their observations, or else to summon some of them specially to the Home Office. That system, in the opinion of the Home Office, has several defects; the first is, each inspector acts in his own district independently of the inspectors of other districts—he does not come into personal contact, except at the annual meeting in London, with each of the other inspectors, although, of course, free to communicate with them. On important matters the Home Office is able to secure more or less uniformity of action, for instance, in regard to such matter as the recently established rules for electricity and for timbering, and the like; and, of course, the Home Office instructions apply to all the inspectors alike, but it appears to the Home Office that the general result of the present system is that it does not secure a uniform administration of the Acts throughout the country. That will be illustrated later when the Commission comes to the question of Special Rules, and the differences between the different codes in the different parts of the country. The second defect which the Home Office thinks attaches to the present system is that each inspector is responsible solely to the Home Office, and the Home Office is not, as a general rule, brought directly into contact with the districts and the mines; it can only judge of the efficiency of the inspectors' administration by general results. The present system, therefore, does not guarantee that a uniformly high standard of inspection is constantly maintained in all the districts. Thirdly, the Secretary of State experiences considerable difficulty in dealing with important mining questions. This will appear in more detail when the Commission comes to matters like watering and ventilation, But the difficulty arises in this way. When any important mining question of a technical character comes before the Home Office for decision, the Secretary of State has to rely, of course, upon the advice and experience of the inspectors, and it is very difficult for the Home Office to focus the different advice and experience which it receives from the different inspectors. Each inspector, of course, speaks with reference to his own district and his own experience, chiefly and different views are very often expressed by different inspectors. The Home Office's function is to balance one view against another, and to come to some general conclusion. In regard to some very important matters like the watering of roads in mines, very great difficulty indeed has been experienced in arriving at any general conclusion.

Suggestions for improvement.

11. How do you propose to minimise that difficulty?—The chief remedy that the Home Office would suggest is the appointment of a Chief Inspector of Mines.

12. I suppose the Chief Inspector then would have to go over all the districts, would have jurisdiction over all the other inspectors, and would act as a sort of general supervisor over the whole of the mines of the country?—Yes, that would be our suggestion: that he should hold a position similar to the Chief Inspector of Factories and similar officers in other Departments; he would supervise the work of all the inspectors; he would himself go into the different districts and supervise the administration of the Acts in the different districts, and advise the Secretary of State on all important mining questions. He would investigate questions in the different districts and discuss them with the different inspectors, and present to the Secretary of State definite conclusions on the matters in question.

13. Would you suggest that the other inspectors should have the right they now have of sending in their

Digitized by Google

own views straight to the Secretary of State, or that they should come through the Chief Inspector?—I think it would follow that they would come through the Chief Inspector. In addition, the Chief Inspector would have the duty of editing the Annual General Report on Mines and Quarries, and the mining statistics generally. That duty was discharged for a long time by Sir Clement Foster, but when he died (I think in 1904) the Home Office did not see its way to make any further appointment, and no Editor at the present moment has actually been appointed.

14. Are there any other points you wish to refer to on the present system? I understand you will proceed to give us your views on men's inspection under General Rule 38, but I do not know whether you have anything further to add on the general question?—I have nothing further to add on the general question.

15. Then we go on to men's inspection under General Rule 38?—That forms part of the general question as regards the sufficiency of the present inspecting staff of mines. The men's inspection comes in under that.

16. What do you say as to the sufficiency?—The standard of inspection aimed at at present is that every mine should be inspected underground at least once in the year, but this rule is not intended to diminish the number of additional underground inspections at those mines where more frequent inspection is necessary. In practice, mines which specially required attention for one reason or another would receive frequent visits. The Home Office thinks that the question of sufficiency of the present staff of inspectors has to be considered in connection with two other questions: (1) The maintenance of discipline in the mines and the supervision which is exercised by the managers of the mine. (2) The use made by the workmen of their power in General Rule 38. It seems that the observance by the miners of the numerous regulations contained in the Coal Mines Act and Special Rules can only be enforced by those who are in a position to exercise daily supervision, that is, the mine's officials. The Home Office inspectors can only test by sample, whatever the strength of the inspecting staff is. As regard matters, on the other hand, for which the owners are primarily responsible, that is, such matters as state of ventilation of the mine and so forth, an inspector's visit, however large the staff, can only be occasional, and the men can render the greatest possible service to the Mines Department by the exercise of their powers under General Rule 38. In this connection I will hand in to the Commission certain tables which illustrate the question under consideration, and first I will hand in a Table* showing for each district the number of mines at work, the number of men employed, and the number of fatal accidents during 1905. The Commission will see from this table there are considerable discrepancies in the size of the different districts and in the numbers employed and the number of mines to be inspected. In connection with that I should like to say it is not altogether possible to judge of the amount of work in any one district merely by the number of persons employed, or the number of men. There are other considerations, such as the area to be covered, the character, whether dangerous or otherwise, of the mines, and so on. It will be seen from a further table that some of the large districts present less difficulty, and have better records than much smaller districts. I would suggest that with this table the Commission should compare a further Table† which I will also hand in, showing the death rates per 1,000 employed above ground and under ground, and altogether, in each district for the last 10 years. That table is very instructive, as it shows exactly the different degrees of danger and risk in the different districts.

17. I understand you have come to the conclusion at the Home Office that the time has arrived for a re-arrangement of the mining districts?—Not altogether. The Home Office puts this before the Commission, but I do not think the Home Office has formed any general conclusion as to any special mode of rearrangement, or whether or not any re-arrangement is required. Some of the districts, it will appear from the second Table, are more dangerous and have higher death rates than other districts. In what way that should be met, whether by increasing the staff of inspection, or re-arrangement, or whether the appointment of a Chief Inspector will assist, is a matter which we should like the Commission to consider.

18. You do not propose the Chief Inspector should have a district of his own?—We do not actually suggest that. I believe that has been suggested, but there are certain difficulties in the way. It is obvious that the Chief Inspector should have a central office in London for the purpose of communication with the Secretary of State, and there is no district of any importance which could be assigned to him in the neighbourhood of London. I should like to hand in a table‡ as a matter of interest, showing at different periods in the history of the Mines Department the strength of the inspecting staff, the number of fatal accidents, and the number of mines at work. On the general question of inspection, and the visits paid by the inspectors, I should like to refer the Commission to the Home Office Instructions to inspectors on the subject of inspection. It is a long Instruction, and perhaps it will not be necessary for me to read it, as the Commission have copies before them; but it shows exactly under what instructions the inspectors work in visiting mines, and the importance which the Home Office attaches to the work of inspection as the chief part of the inspectors' duties. In that connection I would hand in a printed table showing during the years 1902 to 1905 the number of inspections which have been made in each district by the inspectors. That table will give the Commission a fairly accurate idea of the amount of inspection actually done. I should like to add, with reference to those tables, that in considering the tables, and especially the number of inspections made by the inspectors in charge of districts, allowance should be made for the other duties which occupy a considerable part of the time of the inspectors in charge, such as attendance at prosecutions and inquests, correspondence, preparation of the Annual Reports and Statistics, conferences with owners and at the Home Office, and so on. The Commission will see on an examination of these tables that while they show a steady improvement in the amount of inspection, and a decrease in the number of mines not inspected during the year, they also seem to show that the inspectors in charge of districts are too much taken away by other duties from the actual work of inspection. The number of underground inspections in mines by the inspectors in charge is very much smaller than the number of underground inspections made by the assistant inspectors. The Commission will no doubt have the inspectors before them, and will wish to hear what they have to say upon that matter.

19. Then you do not make any proposal or suggestion on behalf of the Home Office as to how that matter should be dealt with?—We would leave to the Commission to consider the question of any increase of staff, or re-arrangement of districts after hearing the inspectors: but it might be possible for the Home Office, without any changes at all, to transfer a certain amount of the clerical work which overburdens the inspectors at present to the Mining Statistics Branch of the Home Office—work in connection with the preparation of the Returns, and so on.

The tables handed in will indicate to the Commission that there are considerable differences between the districts in the death rates, and the Home Office has especially felt some anxiety as to the observance of the Acts in the South Wales and the Scottish districts. The tables show that both South Wales and Scotland have bad records, both as regards the death rate generally, and as regards explosions caused by the use of naked lights, accidents, and other matters. The great maiority of serious explosions in recent years have occurred in the South Wales districts, and the reports on several occasions, with regard to the Elba explosion, the National Colliery explosion last year, and others, seem to show both laxity of management on the part of the owners, and a certain want of discipline among the men. A table which I will hand in later shows also that the accidents from haulage are proportionately very much higher in the two South Wales districts: and there are other matters, questions of ventilation, which have also come up in connection with South Wales. There is one small point which I may mention here, and that is with regard to the enforcement of the Special Rules for the use and installation of electricity which were

* Appendix II. † Appendix III. ‡ Appendix I.

Digitized by Google

Mr. M. Delevingne. 27 June 1906.

established recently. This is a very elaborate code of rules, and its enforcement is a matter requiring considerable technical knowledge and skill. The present inspectors, in most cases, have had no special electrical training, and the question of affording them some assistance seems to be a matter which might engage the consideration of the Commission. It has already been made a condition of future appointments that electrical knowledge must be possessed by the candidates.

Inspection by workmen.

Then I come to the question of the use made by the men of their powers under the General Rule 38. General Rule 38 gives the miners employed in any mine the power to appoint two men, who may be either of their own number or any two persons whatsoever, who are practical working miners, to inspect the mine once at least in every month: they have the right to go to every part of the mine to make that examination. The Home Office has been advised by the inspectors that this power where it is exercised has been found to be very beneficial: but it is taken advantage of by the men in very different degrees in the different districts, and in some districts is practically a dead letter. If the Commission would like me to do so, I can give them information which was collected recently as to the extent to which the power was used in each district.

20. You have no table which shows how far the power has been exercised, and with what result?—I have no accurate statistics.

21. I dare say the Commissioners would like to know, as far as you are able to tell them, what the result has been, and how far this power has been carried into effect?—Information has been obtained on two occasions in recent years, namely, in 1898 and 1902. The result of the information collected in the year 1902 will be found in the Inspectors' Reports for 1901, which were published in 1902. The information obtained in 1898 was to meet the same effect, and may be summarised as follows:—In the East Scotland District the Section was reported to be a dead letter, and the same was the case in the West Scotland District. In the Newcastle district it was reported to be used at a considerable number of collieries, but to a varying extent: the general result has been beneficial, as it made the officials of the mine more careful. In the Durham District it was used in the larger and more dangerous mines, and the inspector reported that the power was a good one, tending to safety, the men making careful inspection of the working places, of the system of timbering, and of the condition of the intake airways, etc., and that it kept the officials of the mine more on the alert. In the Yorkshire District it was used in about one-third of the collieries, with very beneficial results; with regard to that I should refer to a very recent Report by the Inspector of the Yorkshire District on the subject. In the Manchester and Ireland District the power was very rarely used.

22. Are you going to put in the Report from Yorkshire?—The Report will be before the Commission. It is the last published Annual Report of the Inspector of that District.

23. That Report contains this information?—Yes. In the Lancashire District the power was used in one or two mines only, chiefly on account, as the inspector said, of the cost, and the laborious nature of the work. In the Midland District it was seldom used. In the Staffordshire District it was seldom or never used. In the South Wales District in 1898 it was reported to be used in the majority of larger mines at intervals of once a month to once a year. Further figures obtained in 1901 showed that in the Cardiff District only 50 mines were inspected in this way, in the Swansea District only 23, and 21 in the Southern District, which includes part of Monmouthshire.

24. What proportion would that be of the whole number of mines?—The figure for Cardiff was 50 out of 211, and in Swansea it was 23 out of 267. In the Southern District, which includes Monmouthshire, the inspector reported that it was used at about one-half of the important collieries at intervals, on the average, of two months. It may interest the Commission to know that in 1899 this system of examination of mines by or on behalf of the men was investigated by a German Commission. With regard to that I will hand in their Report* if the Commission wishes. They came to the conclusion that the system had given good results in England, the principal practical advantage in the eyes of both masters and men being that its existence was an inducement to the subordinate officials to keep the mines in good order. The Report of the Inspector for the Yorkshire District, to which I referred a few moments ago, says that examinations of this kind do an incalculable amount of good: they tend to keep the discipline up to the required standard, and to prevent slackness on the part of officials. The question of how this power and its use could be extended and improved is a matter which the Home Office suggests should engage the consideration of the Commission. It has appeared from one or two Reports on serious explosions, for instance the MacLaren explosion and the National Colliery explosion last year, that at the mines in question the power had only been very rarely exercised by the men.

25. You said that in one district the power was not exercised because of the cost. How is the cost borne?—By the men themselves.

26. And the men do not care to incur the cost?—That is what I understand to be the inspector's meaning. Generally, I might perhaps add on this subject, that the co-operation of the men and their assistance in calling the attention of the inspectors to defects in the working of the mines and in the observance of the Acts is of the greatest possible value to the inspectors in enforcing the Acts, and all complaints and information received from any source whatsoever by the inspectors are treated as absolutely confidential.

27. Inspectors, as a rule, consider that these Reports by the men are very valuable Reports, and show that the men have taken a great deal of pains to go into the matter thoroughly?—Where the power is exercised we have received almost unanimous testimony that it is very beneficial. I do not know that every inspector formed the same opinion, but it is the general opinion.

28. However, we can get that information from the inspectors themselves?—Yes. I think that is all I have to say on that subject.

Maintenance of supervision and discipline by the management.

29. Then you go to the question of discipline and supervision?—Yes, that is the question of maintenance of discipline in the mines by the owners, and the supervision exercised by them. Sections 50 and 51 of the Act make the owner, agent or manager of a mine liable, in the event of any contravention of the General or Special Rules occurring in the mine, unless they can prove to the Court that they have take all reasonable means by publishing, and, to the best of their power, enforcing the rules, to prevent such contravention. This imposes a very important duty on the management of a mine, to enforce the observance of the rules by the persons employed. This question of maintenance of discipline and supervision is one of the most important, as the Home Office suggests, for the consideration of the Commission. The power of prosecuting workmen for breaches of the rules is exercised to very different degrees in different districts and by different owners. I will hand in tables† to the Commission showing the number of prosecutions of workmen by the owners of mines during the five years 1901 to 1905, classified in one table according to the nature of the offence, and in the other table according to the different districts.

Prosecution of workmen

30. That table, I suppose, will give the results of the prosecution, and show whether it was successful or not?—The results are reported to the inspector. The tables will give the results of the prosecution, and show whether it was successful; they give the number of prosecutions and the number of convictions. The inspectors report that some owners very seldom take this means of keeping discipline in the mine; others do not hesitate to take legal proceedings for every violation of the rules. So that no real comparison can be made from this table as to the discipline maintained in the different districts, because some owners have not prosecuted for matters for which other owners have. Then there are other methods of enforcing discipline. One practice, which is not uncommon, is to give the miner the option of being fined or prosecuted, and the workman usually, I believe, prefers to pay the fine. That raises two questions: from the point of view of the owner a prosecution is undoubtedly an inconvenience: he has to take one of his officials away from the regular work of the mine in order to send him to the police court to prove the offence, and during

* Appendix XI. † Appendix IV.

Digitized by Google

his absence the supervision in the mine is, of course, diminished to that extent. From the Home Office point of view it seems to be a question whether a small fine imposed by the owner is really so effective a deterrent as police court proceedings, with their publicity, the higher penalty (possibly imprisonment), and the loss of time involved to the man. Under this head of Maintenance of Discipline, the Home Office would wish to call the attention of the Commission to the references in the Annual General Report, which bear upon the question of discipline in one or two districts. Sir Clement Foster, in his Annual Reports for 1901 and 1902 (and the same thing is done in the Annual General Reports for 1903 and 1904) refers repeatedly to the fact that the discipline maintained in Scotland and Wales is not so good as that maintained in the rest of the country, and he illustrates that by the far higher proportion of explosions of fire damp caused by breaches of the Statutory Rules and Regulations which occur in those districts. In several of the explosions which have occurred in the South Wales district it has been found that breaches of the Special Rules had been committed by the men. For instance, in one explosion in 1902 (Fochriw) tobacco and matches were found on several of the men killed, and two of the safety lamps were found with the gauze removed, and there was some evidence that this was frequently done by the men, and done with the knowledge of the officials of the mine. In regard to this question of prosecutions for the maintenance of discipline, the Secretary of State would call attention to the fact that from time to time it has been brought to his notice that the men are defended, when proceedings are brought against them by the owners, by their Union, and the expenses of the prosecution paid. I should like to call the attention of the Commission to a paragraph on that subject in the Annual General Report for 1902, at p. 122; "Mr Ronaldson, the inspector in charge of the West Scotland district, points out that the officials of the Miners' Union might do good by endeavouring to influence their own members, whereas in one part of his district the Union pays for the defence of any of its members who may be prosecuted. In his opinion that action encourages an attitude of hostility towards the regulations instead of promoting a tendency to insist on maintaining the discipline which is indispensable to the prevention of accidents. The Home Office has no detailed information as to how far that is done, but it desires to call the attention of the Commission to that remark by the inspector as having rather an important bearing on the question of the maintenance of discipline in the mines.

31. I suppose it is suggested by the Report that the Union in every case pays the expenses of the men, even althought it may be perfectly clear that they have acted in breach of discipline?—I take that to be the meaning. That is a matter which we would suggest the Commission should inquire into as to the practice in the different districts.

32. (*Mr. Enoch Edwards.*) It is with reference only to that particular district?—It is only with reference to that; I only quote that for the West Scotland district. But it seems such an important matter that no doubt the Commission would wish to inquire into it.

Inspection by mine officials during shifts.

33. (*Chairman.*) The inspector for that district will give evidence here, no doubt, and will tell us of that?—Yes. On the general question of the supervision exercised by the owners and management of the mine, the maintenance of discipline depends, of course, not only on the punishment of offences, when discovered, but far more on the exercise of effective supervision during working hours. With this is connected the general question of inspection during shifts by the officials of the mine. General Rule 4 of the Coal Mines Act requires one inspection only during the course of a shift. The question whether this is sufficient has often been raised. Recently in the Southern district (Mr. Martin's district) the inspector made an attempt to introduce a Special Rule requiring at least two inspections during the course of a shift: but this was opposed by the owners and had to be dropped. In connection with the Timbering Rules, which I shall come to presently, the inspectors have made a recommendation that two visits during a shift should be made by the officials. Then, a further question which the Home Office would suggest for the consideration of the Commission is the thoroughness of the inspections made during shifts. Inspectors have from time to time commented upon the fact that in some cases the districts assigned to the officials are too large to enable them to make a thorough inspection in the course of a shift. Both these matters seem to the Home Office to be matters which should engage the attention of this Commission.

Charter-Master System.

34. Then you deal next with the question of the charter-master system?—I should like to call the attention of the Commission to the existence still in the Staffordshire district of what is known as the charter-master system. I would hand in a Report by the inspector of the district on that system. It is too long for me to read, but I may say that it is a system by which the owners contract with contractors who are known as charter-masters to get the coal for them out of the mine at a certain rate, the contractor employing the men and paying their wages. The inspector reports that it has a bad influence on the observance of the Acts, and he calls attention to the fact that the death rate in that part of the district is very high. The Commission will no doubt have that inspector, Mr. W. N. Atkinson, before them.

Responsibility of owner.

35. Do you wish to say something as to the responsibility of the owners when managers are appointed?—The question has several times arisen in connection with the administration of the Acts as to how far the owner of the mine is responsible as distinguished from the certificated manager whom he appoints. I have already referred to the duty placed upon the owner as well as upon the manager and the agent under Sections 50 and 51 of the Act. These provisions have on several occasions been the subject of consideration by the courts. Most of the cases, I think, will be found in the Appendix to the Home Office Instructions, but one, namely, *Baker* v. *Carter*, I find, is not included. The cases are *Baker* v. *Carter*, *Wynne* v. *Forrester*, *Corfield* v. *Evans*, *Stokes* v. *Checkland*, and *Stokes* v. *Mitcheson*. The general result of these decisions is to leave it not at all clear as to what are the steps that an owner must take to satisfy the requirements of Sections 50 and 51—in other words, what steps he must take personally to enforce the rules in order to divest himself of responsibility in the event of a contravention being committed in the mine. In *Baker* v. *Carter* (a case of a non-resident owner whose partner was also the certificated manager in charge of the mine) it was held that the fact that the owner had appointed a competent manager was sufficient to exonerate him. In *Wynne* v. *Forrester*, *Corfield* v. *Evans*, and *Stokes* v. *Checkland*, a rather different view seems to have been taken by the Courts. I might perhaps read the judgment of Mr. Justice Bruce in *Stokes* v. *Checkland*. The Learned Judge said: "I certainly am not of opinion that a respondent, as in this case, the agent of a mine"—and the case of agent is practically the same for this purpose as the case of an owner—"discharges the responsibility which the Act imposes upon him simply by appointing a properly certificated manager." Then, lower down he goes on to say: "I think that where a person who is agent of a mine sees that a thoroughly competent manager is appointed; where he does, as the agent in this case did from time to time, look round the mine to see that the men are doing their best, not interfering with the other manager, but looking generally to see that all is going on well, and then takes means that a fund shall be provided for all necessary expenses for the purpose of safety, it seems to me that the magistrates on that evidence find that the agent does all that he reasonably can do to discharge the responsibility which the Act casts upon him. I regard this as a very different case indeed from *Wynne* v. *Forrester*. If there had been any evidence here of any facts indicating danger—that any disregard of the rules had taken place, which had been communicated to the respondent—I think he would have been bound then to take some definite means to see that measures were taken to avoid the danger, and enforce the rules more strictly in future, and he would not have discharged that obligation by merely telling the manager to see about it." In *Stokes* v. *Mitcheson*, which is the last case on the subject, the Court, after referring to the decision in *Baker* v. *Carter*, held that the owner was not responsible, though chiefly apparently on the ground that in that case the offence in respect of which the owner was charged was a temporary matter which it would not have been reasonable to have expected him to have discovered, and to that extent it does not seem to conflict with the views expressed in *Stokes* v. *Checkland*. Recently, however, in a Scottish case, the Home Office failed to secure

Digitized by Google

Mr. M. Delevingne.

27 June 1906.

a conviction against an owner under these circumstances; a mine was visited in June of one year by the inspector, the ventilation was found to be defective, there was also a want of manholes, and the owner was accordingly warned by the inspector. In December of the same year the mine was again visited, the ventilation was still bad, and there was a want of manholes in the same road. The Home Office instituted proceedings through the Scottish Legal Authorities, and the Sheriff, while convicting the manager of the mine, dismissed the complaint against the owner, and in giving judgment said: "The owner may dissociate himself from the mine by appointing a certified manager." He appeared to hold that the owner having instructed the manager to see to the matters complained of had done his duty. The Home Office wished to appeal, but they were advised by the Scottish Legal Authorities that on the case as stated by the Sheriff there would be no chance of success.

36. (*Mr. Ratcliffe Ellis.*) Is that case reported in the print of the Home Office Instructions?—No, that is a case which was heard in the Lower Court, and an appeal was not taken. The Scottish Legal Authorities advised us that an appeal had no chance of success on the case as stated by the Sheriff. The general considerations which the Home Office would like to put before the Commission on that point are briefly these: First, that it is obviously possible, if the view is taken that an owner discharges his duty by appointing a certificated manager, for him to appoint a manager and make him nominally responsible for the working of the mine and yet practically keep the control in his own hands, and make the manager subordinate to himself; and this is what the inspector thinks occurred in the Scottish case. Secondly, in the Scottish case a warning had been given to the owner personally by letter from the inspector, and the Home Office view is that when an owner's attention has been called to breaches of the Act in the working of the mine, it ought not to be sufficient that he should merely give instructions to the manager to put them right, but that it should lead to closer supervision on the part of the owner himself to see that the manager who is presumably responsible for the offences in question is doing his duty.

37. (*Mr. F. L. Davis.*) Is it the view of the Home Office that the owner should not get out of his responsibility by appointing a manager?—Yes, that he should not get out of his responsibility, in other words, that the duty of appointing a manager is a distinct duty placed upon the owner by a different Section, namely, Section 20 of the Act, and that the duty of the owner to enforce the rules and the Acts, which is a further duty placed upon him by the later Sections, is not discharged by compliance with the previous Section of the Act.

38. (*Chairman.*) You deal next with the question of accidents?—I do not know whether it would be convenient to take any questions now upon that first part of my evidence.

39. (*Chairman.*) Yes, it would be, as that finishes one part of your statement. If any Commissioner likes to ask questions now by all means let him do so. There will be another opportunity afterwards when your evidence is in print.

40. (*Mr. Ratcliffe Ellis.*) Have you the actual statement of the case which was made by the Sheriff?—No, that is with the Scottish authorities.

41. (*Mr. Ratcliffe Ellis.*) Could we obtain the case itself as stated by the Sheriff, upon which the Home Office did not appeal?

42. (*Chairman.*) Yes, I think we ought to have that. I suppose it could be got?—I imagine it could, certainly.

43. It would be at the Home Office, I suppose, and would be a formal statement of the case in the action. Of course we can have that; it would not be a confidential paper. Then that will be produced?—We will ask the Lord Advocate for that.

44. (*Sir Lindsay Wood.*) I understand that the Home Office suggests there should be a larger number of inspectors?—The Home Office does not make any definite suggestion upon that point; it simply puts the question before the Commission for investigation.

45. But you suggested, as I understood, that the Chief Inspector should make more frequent inspections of the mines, and that there should not be so many inspections by the assistant inspectors?—We do not suggest that the assistant inspectors should make fewer inspections, but that it is very desirable that the inspectors in charge of mines should make more frequent inspections than they are able to at present.

46. (*Chairman.*) I understood the Home Office suggestion to be that that might be effected in two ways, either by appointing more inspectors or by taking away some of the clerical duties which the inspectors have now to perform?—I think it would be possible to give them some relief by taking away part of the clerical duties, but we do not anticipate that it would give them very much relief. That is a question upon which no doubt the Commission will have the inspectors before them and will ascertain their views of the actual working of the present system from themselves.

47. (*Mr. Ratcliffe Ellis.*) Is it the view of the Home Office that the difference in the different districts in the Returns as to accidents depends upon the inspection?—The Home Office does not suggest that is the sole reason. I should say it must depend upon a good many things, one being the more or less dangerous character of the mines in the different districts, but also no doubt it depends upon the extent to which proper discipline is maintained and the extent to which supervision is exercised by the management, and certainly also to some extent it might be dependent on the difference of efficiency of administration by the inspector.

48. Of course, you have not lost sight of the fact that there exist very different physical conditions in the different districts under which the mines have to be worked?—Yes, of course, that is so.

49. Then what is the view of the Home Office with reference to the duty of the Chief Inspector in cases under Section 42 of the Act as to the dangerous practices prevailing at collieries? Who would give that notice? Is that given by the inspector or the Chief Inspector?—I should think it would be given by the inspector in charge of the district. That is the practice at present, and I do not see why the appointment of a Chief Inspector should alter that.

50. Is not that one of the most important duties of the inspector of the district? If he sees any dangerous practice at a colliery, then he is entitled under this Section to prohibit it, or to require the owner to proceed to arbitration if he does not agree with the inspector?—As a matter of fact, the power under Section 42 is very rarely exercised.

51. Yes; but whatever it is, you say that would be the duty of the local inspector and not of the Chief Inspector. But is not that one of the very important powers which the inspector has to secure safety?—The appointment of a Chief Inspector would not interfere with the exercise of the power in Section 42. The inspectors at the present moment when using their power under Section 42 act directly under the instructions of the Secretary of State—they have to get the instructions in the first place of the Secretary of State, that will appear from the Home Office printed instructions—and the only difference that the appointment of a Chief Inspector would make, I think, would be that they would get the instructions from or through the Chief Inspector.

52. One of the reasons, if I understood you rightly, for the appointment of the Chief Inspector was the want of unanimity at times amongst the inspectors themselves as to certain matters?—Yes, that is one of the reasons, or rather the difficulty experienced by the Home Office in framing a general conclusion on the different opinions expressed and the different experience reported from the different districts.

53. They propose to shift that responsibility upon the Chief Inspector?—Well, the Secretary of State will have an expert adviser, who will be able to sum up the whole matter for him and present it in a more definite form.

(*Mr. Ratcliffe Ellis.*) I think I should like to postpone further questions until we have the evidence in print.

54. (*Mr. F. L. Davis.*) I was going to ask somewhat similar questions. I should like to know whether it is the wish of the Home Office that this Chief Inspector should be the channel, we will say, through which all the other inspectors' information should come; that is to say, that he should boil down all that comes from the other inspectors and should advise the Home Office. It is a question of a simple

Digitized by Google

way of getting expert advice on all the other people's reports; is that it partly?—Yes, I suppose that is very much what it comes to.

55. As I understood also, this Chief Inspector would be a man who would be qualified to advise the Home Office, we will say, on electrical matters, and anything, in fact, with regard to new departures in mining?—Certainly, that is one of the chief objects; it is to have a mining expert of high qualifications for that purpose.

56. (*Sir Lindsay Wood.*) I thought I understood you to say that the Home Office thought the power of the inspectors ought to be increased?—No, I did not mean that. Apart from the question of amendment of the Acts themselves, I think the actual powers of inspection possessed by the inspectors under the existing Act are sufficient.

57. (*Chairman.*) It is understood that when this evidence is printed, any Commissioner will be at liberty to further interrogate Mr. Delevingne.

58. (*Mr. Smillie.*) All accidents caused by explosions of gas or steam boilers must be reported, but it is left with the manager to decide as to whether an accident is of a sufficiently serious nature to report to the inspector?—Under the Act as it stands at present the manager has to decide (except in those cases which you have mentioned) whether a serious personal injury is caused.

59. Is it the opinion of the Home Office that an injury causing a person to be absent for about six weeks from his employment would be a serious accident?—I think so, certainly.

60. And ought to be reported?—I think so, certainly.

61. Have the mines inspectors any information on that point?—I do not think they have any special information. Some of them from time to time have tried to collect statistics, but of course they have no power of requiring them.

62. Would the Home Office be surprised to know that an inspector thought that in the case of that kind it was still a question for a manager whether six or eight weeks was sufficiently serious?—That is a question as to which the Home Office and the inspectors have no power of laying down a rule at present, but I might say that under a Bill which is before the present Session of Parliament, namely, the Notice of Accidents Bill, the whole question of reporting accidents in mines has been overhauled and a definite standard has been laid down.

63. Are you aware that the Home Office have had complaints that many accidents were not reported which were of a serious nature?—Yes, that is certainly the opinion of the Home Office.

64. Could you give the definition of Rule 38, or the opinion of the Home Office as to that rule, which says, "That the persons employed in a mine may from time to time appoint two of their number, or any two persons, not being mining engineers, who are practical working miners." Is the definition of that that the persons appointed must be working miners at the time of their appointment?—I believe that is so; that is the view taken by the Courts.

65. Do you know whether that was the intention of the Act?—I am afraid I cannot say.

66. It is a very important question to miners. I take it that the Home Office wishes to encourage inspection locally by workmen?—Most certainly.

67. I think the miners would prefer appointing two men permanently for the district, so that those men should make inspections in the district, and that the miners should pay them, but they are prevented by that rule with regard to their being working miners. Do you not think that that is an obstacle to that being done?—The rule as it stands would apparently prevent the appointment of men to give their whole time to inspection. I should think you had better ask the inspectors as to the effect of the rule in this respect.

68. It is not a question for the inspectors, but it is a Home Office question?—I am afraid I cannot say how far the fact that permanent appointments are not allowed militates against the working of the Section.

69. I may be able to get that information from some of the other witnesses?—I think you will be able to get that information from the inspectors.

70. (*Chairman.*) I understand that the Home Office attach very great importance indeed to the men taking the trouble to avail themselves of this rule, and that where they do take the trouble to avail themselves of this rule and appoint practical working men to inspect the mines the results are extremely satisfactory in every way?—That is the advice we have from our inspectors.

71. (*Mr. Smillie.*) Has Mr. Ronaldson given any details as to in what part of his district workmen charged with an offence against the Mines Act are defended by their Union?—Mr. Ronaldson does not state the actual part of the district.

72. It might be well that I should say that I am an official of the largest union in Mr. Ronaldson's division, and I know that we have set our faces against defending any workmen who are charged with breaches of the Mines Act, with the exception of, I think, one case, in which we were satisfied that the prosecution was unjust.

73. (*Mr. Enoch Edwards.*) I may take it that your remarks only apply to Scotland?—I only quoted that one paragraph.

74. You have no complaints to make with regard to the other districts?—The matter has been mentioned from time to time, but I have no exact references to give to the Commission. I put it before the Commission as a matter, not of charge at all, but merely as a matter which, if in any way substantiated, is an important one affecting discipline, and that it is a question for inquiry.

75. I should like to ask you a question upon it, because it seems to me that we may get some light now rather than from the inspectors. What powers have the inspectors in enforcing orders—that is to say, supposing you have a colliery where they use naked lights, and the inspector advises that it is not safe to use naked lights, and he instructs that colliery to put in safety lamps, what powers has he to enforce that?—He can either enforce it by a prosecution under General Rule 8, which regulates the use of safety lamps; if he can prove that the use of safety lamps is required in the mine by General Rule 8 he would obtain a conviction in case the manager refused to introduce them. If that be uncertain, or if he could not establish a case under General Rule 8, he could have taken the course, before the Act of 1896, of serving notice under Section 42, to which Mr. Ratcliffe Ellis referred just now—the Section which enabled him to take action in any case of danger not covered by the rules. He could have done that before the Act of 1896, but since the Act of 1896, which gave power to establish special rules prescribing the nature and description of the lights or lamps to be used in the mine, it would be open to the inspector, subject to the Secretary of State, to propose a special rule for the mine requiring the use of safety lamps.

76. If he was satisfied that it was desirable to put in safety lamps, he has the power of enforcing it?—He has only the power by prosecution (in which, of course, he may fail), or else by proposing a special rule, in which case the owner has the right to take him to arbitration, and in which case also he may be unsuccessful. The inspector has no power of compelling the use of safety lamps at his own discretion.

77. I suppose the Home Office is aware that at certain collieries (I do not wish to bring in the names of those collieries for the moment) the inspector has advised the use of safety lamps his advice has been ignored, and there has been an explosion and a number of men killed?—I believe that has happened. Might I suggest that you should postpone further questions upon that point until we come to the questions of safety lamps and the mode of establishing special rules. I think we have something to suggest under both those headings which will give the inspectors further powers of dealing with the question of safety lamps.

78. I understood that you referred to that point when you dealt with the question of enforcing the discipline?—I meant by enforcing the discipline enforcing the observance of the regulations and special rules by the owner against the persons emlpoyed.

79. Of course, you would have no objection to take in the other side of the question, that while the owner

Digitized by Google

Mr. M. Delevingne.

17 June 1906.

should enforce them against the persons employed, the inspector should enforce them on the owner?—Yes. I have already dealt with that. Of course, the inspector has to enforce the obligations upon the owner.

80. I should like to put a question upon what is a very interesting feature, namely, the inspection of mines by workmen. You told us, and, I suppose, with perfect truth, that the workmen do not avail themselves of this power to any large extent?—Well, that is the general result. In some districts it is not used at all; in others it is used to a certain extent.

81. Has it ever been brought to the Home Office that in the minds of some men there is a fear with regard to the operation of this clause?—I believe it has been alleged that the men in some cases do not like to avail themselves of it; but we have never been able to get any direct evidence of that.

82. You would take it, perhaps, as an illustration if I told you that I used to perform this work as a collier sometimes, and I had the courage to report what I found, and I was discharged. Have you come across that sort of case?—No, we have no definite instance of that; it has not been brought to our notice.

83. (*Mr. F. L. Davis.*) Mr. Edwards refers to something which happened a long time ago. Have you formed any opinion as to the payment of these men—because that appears to be the difficulty?—No; the Home Office has no opinion to offer on the subject.

Accidents—generally.

84. (*Chairman.*) Will you go on to deal with the question of accidents?—On the question of what further precautions are required my evidence will be only quite general. I will place before the Commission such statistics and information as are in our possession, and would seem to be useful to the Commission, and, leaving out minor details, state the important questions which have come before th Home Office for consideration, and which the Home Office is anxious should engage the attention of the Commission. The Commission will get technical information in detail from the inspectors, and the inspectors probably will also have a number of other points besides those I mention to bring before the Commission. I propose to deal first with particular classes of accidents, and then with certain general questions, such as the establishment of special rules, ambulance and rescue work, and the investigation of accidents. Perhaps, however, before dealing with those points, I might refer to the point which Mr. Smillie raised as to the reporting of accidents. The tables which I will hand in will only include fatal accidents. In consequence of the want of definiteness about the provision in the Act, to which Mr. Smillie referred, the reporting of non-fatal accidents has in the past been very incomplete, and the reports for statistical purposes are practically useless. This will be remedied in the future by the Notice of Accidents Bill of this session, which has already passed the House of Commons, and is now in the House of Lords. The statistics which I will hand in will refer to mines under the Coal Mines Act, unless otherwise stated. I might, perhaps, in coming to particular classes of accidents deal with them in this order: explosions of fire damp or coal dust, falls of ground, shaft accidents, miscellaneous, and surface accidents. Generally I should like to call the attention of the Commission to the comparative tables of accidents and death rates which they will find in the annual general report for each year at the ends of parts 1 and 2. Those tables show what progress has been made during the last 30 or 40 years in reducing the number of accidents and the death rates. Shall I go on now to deal with the different questions which have arisen under the heading of explosions of fire damp and coal dust?

Explosion of Gas and Duet.

85. Yes?—I might say, in starting, that this is the class of accidents in regard to which perhaps the most successful efforts have been made to reduce the death rate. In the ten years from 1873 to 1882 the death rate per 1,000 persons employed underground, from explosions, was 0·65; for the ten years 1883 to 1892 it was 0·32; for the next ten years, 1893 to 1902, it was 0·18; and for the last three years, 1903, 1904, and 1905, it has been respectively 0·02, 0·03, and 0·26. In the year 1896 an amending Act was passed, which gave the Home Office certain very important powers with regard to the regulation of explosives and other matters which bear directly upon this question, and the Explosives Order which has been made by the Secretary of State has apparently had a considerable effect in reducing the death rate. I do not know whether the Commission would wish me to go in detail into the different explosions which have occurred since 1896, but the Secretary will no doubt lay before the Commission the different reports which have been made to the Home Office, and which have been published, with regard to those explosions. Shall I now take the question of watering roadways?

Watering.

86. Yes?—I might perhaps put briefly before the Commission the history of the Home Office action on this subject, as it illustrates the difficulty I have already called attention to, which is experienced by the Home Office under the present system in forming any general definite conclusion upon difficult mining questions. The question of watering was one of the questions considered by the Commission on Coal Dust, which reported in 1894, and their recommendations on the subject will be found at pages 29 to 31 of their Report. That Commission expressed the opinion that the only sufficient precaution hitherto suggested against the dangers of coal dust in fiery mines is a complete and satisfactory system of watering; but they stated that they were not prepared to recommend that any universal or stereotyped rule should be laid down. Their suggestion was that in any case in which the inspectors think it desirable they should use the powers given by Section 42 of the Act of 1887, to declare that the provision for watering dust in any particular mine is insufficient, and to require such further arrangement to be made for this purpose as they may prescribe. As a matter of fact, Section 42 was not available for that purpose, because the Courts have held that in giving a notice under Section 42 to an owner to remedy any particular source of danger the inspector is not empowered to specify the means to be taken by the owner for that purpose. Also, the procedure would have to be exceedingly cumbrous, because under Section 42 the owner, on receiving a notice, has a right to object, and to take the matter to arbitration. It would be an extremely costly and cumbrous procedure.

87. That points, I suppose, to the amendment of Section 42, does it not?—The question rather which the Home Office wish to suggest for the consideration of the Commission is whether any definite and general rule can be laid down on the subject for dry and dusty mines. Then in 1896, by the Coal Mines Act of that year, it was provided that the power of making special rules should include a power to provide for "the watering or efficient damping of mines or any ways or places therein." That is open to the second objection to which I have already referred in connection with Section 42—that is to say, that special rules are also liable to be subject to arbitration at the wish of the owner. After the passing of that Act the question was referred to the Inspectors of Mines at a special meeting summoned to consider what action should be taken under the Act and, among other things, what rules should be made under Section 1, the section which I have quoted. The inspectors made the following recommendation:—"All roads within a radius of 100 yards of any shaft by means of which the workmen ordinarily enter the mine shall be kept damp or free from coal dust, and all main haulage roads, unless naturally damp, shall be kept damp, or, if exceeding 500 yards in length, shall be provided with damp and dustless spaces of at least 100 yards in length at intervals not exceeding 500 yards." No action was taken immediately on that recommendation, the attention of the Home Office being concentrated on the question of the framing of an Order under Section 6 of the same Act regulating the use of explosives in fiery or dusty mines, which was ultimately made, and is now in force as the Explosives in Coal Mines Order.

88. (*Sir Lindsay Wood.*) May I ask what recommendation that was?—The recommendation which I have just read was made by the inspectors to the Home Office.

89. It is not published?—No, it is not published; I am giving the Commission the history of the Home Office action in regard to this subject in order to show how the matter now stands and to illustrate the difficulty under the present system of dealing with a matter of this kind. Then in 1901 and 1902 the Llanbradach and Universal Collieries explosions occurred, and I should like to refer the Commission to the reports on those explosions, as having a very important bearing upon this question of watering. I might say

Digitized by Google

that the reports which were made on those explosions show that if an efficient system of watering the roadways had been adopted the loss of life would have been probably very much smaller. In view of the circumstances of those explosions, the inspectors were instructed to bring the published reports of the explosions to the notice of owners of dry and dusty mines, and then, at their annual meeting in 1902, they were asked to advise the Secretary of State: (1) How far steps could be taken to secure more effective watering in dry and dusty mines under the existing law as contained in General Rule 12, Explosives in Coal Mines Order, etc.; (2) whether further regulations in regard to watering were necessary, and in particular whether main roads should be required to be watered, and, if so, to what extent. The inspectors were of opinion that, except in the case of seams where blasting is done, the matter could not be dealt with satisfactorily under General Rule 12 or the Explosives in Coal Mines Order. They also expressed a very strong opinion that the subject should not be dealt with by special rules or by arbitration under Section 42. Upon the question of whether further regulations were necessary for the watering of roads the inspectors did not express any definite opinion. In view of their recommendation, and the difficulties attending the subject, it was decided not to take immediate action to establish a requirement by special rule, but the inspectors were instructed to watch the matter carefully during the year, and it was intimated to them that the Secretary of State would hope to receive some definite recommendations from them at their next meeting. During the course of the following year the MacLaren Colliery explosion occurred. In that case the explosion was prevented from spreading through all the districts of the mine by the fact that a very efficient system of watering had been adopted by the management. In 1903 the subject was again referred to the inspectors, with special references to the circumstances of that explosion, and the inspectors made the following recommendation:—"All main haulage roads in coal mines should be kept free from dust by watering or other means." The inspectors went on to say:—"We believe that this is the only system which would prove really effective; at the same time, we are aware that it would be costly." That, it will be seen, did not in effect carry the matter very much further, because the question of the practicability of wholesale watering of the roadways was one of the main difficulties in connection with the question. The Home Office followed that recommendation up by obtaining from each inspector a definite statement of his own views on the subject and the experience in his own district. I have the replies of the inspectors here before me, but they are very long, and probably the Commission would not wish me to go into them, as they will have the inspectors themselves before them. But I may say briefly that the inspectors were not altogether agreed among themselves, or all convinced as to the practicability of laying down any definite rule. The reports also showed that outside the South Wales Coalfield, on the whole, very little effective watering of roadways was done, but in the South Wales Coalfield a considerable amount was done. The Commission will be able to get from the inspectors some particulars as to the average cost in mines where watering of the roadways was done. It was put in the reports by several of the inspectors as working out at about 1d. per ton of coal produced. In the South Wales districts the inspectors thought that there would not be much difficulty in making the requirement compulsory, but when shortly afterwards the inspector for the Southern District, which includes Monmouthshire, attempted to induce the owners to agree to the insertion of a requirement on the subject in a new code of special rules which was then being settled for the district he failed. There, so far as the Home Office is concerned, the matter stops. The Secretary of State felt that he could not carry the matter further on the advice before him, and he decided to refer the question to this Commission for their investigation and advice. I do not know whether the Commissioners wish me to go into the points which came up for consideration on the subject generally, or whether they prefer to get those from the inspectors. I can only summarise them briefly.

90. (*Chairman.*) If you can summarise them briefly it will be convenient?—The chief points which the Home Office felt had to be considered in arriving at a decision on the question were, first, the practical difficulties, such as the effect of watering on the roof and sides. In some districts it was represented to us (especially by the inspector for the Yorkshire district) that this was a very serious matter—that watering had an effect on the floor, which disturbed the strata. Then, secondly, the question of expense. It was felt that we had not got sufficiently definite information as to the financial burthen that a general and wholesale rule of watering roadways would place upon the industry. Then, thirdly, there was the question which has come up for consideration, I believe, in Germany as to how far a general system of watering would encourage the spread of the miners' disease known as ankylostomiasis. I believe in the Westphalian coalfield in Germany, where watering is compulsory, they decided to suspend it for a time on account of the spread of that disease, but subsequently the requirement was put in force again. Then, fourthly, there was the question how far the object could be attained by remedies short of compulsory watering of the whole of the roadways. Some inspectors suggested (and I believe the suggestion was also placed before the Royal Commission of 1894) that the object might be attained in other ways. One way suggested was the creation of wet zones, or spaces on the roads; akin to this was a suggestion for the arching of the roads for a certain distance on either side of a shaft. In one colliery in Staffordshire, at a shaft where three districts meet, the roads are arched over for a considerable distance with brick, the brick is whitewashed, and the arches are swept periodically, and the inspector thinks that that would probably, in the event of an explosion, stop any explosion beyond those points.

91. (*Mr. Ratcliffe Ellis.*) That is to remove the dust?—It is providing a non-dusty space, over which the explosion would not probably be able to pass. Another suggestion made to the Home Office was that materials other than water might be used for laying on the roads, such as sand or stones, or any non-combustible materials which would stop the progress of an explosion. In the Talk o' the Hill Colliery the explosion was stopped when it came to places where the dust was silicious. Then there was the question whether steps could be taken to cut off the supply of dust in the roads, *e.g.*, by the adoption of an improved kind of tub or tram for the conveyance of the coal along the haulage roads. Most of the dust in the haulage roads is due to the conveyance of coal in the tubs along the roads to the shaft. The question arose as to how far the spread of the dust from the tubs during the haulage could be stopped by improved kinds of trams or tubs, and the Commission will find some very interesting information on that subject, and illustrations of defective trams and tubs in use, in the Report of the Universal Colliery explosion by Professor Galloway, of South Wales. The inspectors, in reply to a reference from the Home Office, stated that the use of waggons with open sides and bottoms was practically confined to South Wales, and that it was desirable their use should be discontinued as new ones were required. The inspectors of the South Wales districts were instructed accordingly to take active steps with a view to secure the disuse of such waggons as soon as possible. Reference may be made to the remark on p. 25 of Mr. Gray's report for 1902. Another suggestion made, which, I believe, is in practice in South Wales already, is the watering of trams to prevent the scattering of dust. In a report on the Clydach Colliery explosion of last year, the inspector describes an automatic system of spraying the trams as they pass along the roads. Lastly, Sir Clement Foster suggested that it might be possible to exhaust the dust altogether from the mine.

92. Do you mean by the pumping of air?—No, I think by some system of exhaust.

93. (*Mr. F. L. Davis.*) Did you mean by the watering of full trams in the case of the Clydach Colliery?—Yes, the spraying of full trams to settle the dust.

94. (*Mr. Enoch Edwards.*) In that case, in which they took the course of watering the full trams, there was an explosion?—Yes, there was an explosion. I refer to it merely to show that the Commission will find there a description of the system. It is only a partial remedy, of course; it is not a complete remedy. It is only one means of lessening the danger. I only put these matters forward as points which have come before the Home Office in connection with the consideration of the question. Another matter which I should

Digitized by Google

Mr. M. Delevingne.
27 June 1906.

refer to is the question of the effectiveness of the methods of watering in use, both for the purposes of General Rule 12, which requires certain watering to be done in connection with shot-firing, and also for the purpose of the watering of roads. A description of the methods of watering in force in South Wales will be found in Professor Galloway's report on the Universal Colliery explosion, and references to the question will be found also in other reports, *e.g.*, the reports on the Llanbradach, the Clydach, and the National Explosions. The inspectors from time to time call attention to the fact that the system of watering is in some cases quite defective—that it only moistens part of the dusty surfaces in the roads. That is one of the questions which the Secretary of State suggests for the consideration of the Commission in that connection.

95. (*Chairman.*) I observe that there is a great deal of evidence with regard to the efficiency of spraying, according to the 1894 report. I do not know whether the Home Office have any information as to the different kinds of watering. Some witnesses seem to think that the spray system has done very well, and that under the spray system there would be no difficulty in watering the roofs and sides?—Yes. I think the only reference which I made to spraying was in connection with the watering of trams. The question of the different modes of watering roadways is a matter which the Commission will have evidence upon from the inspectors. The Home Office does not wish to express any definite opinion upon it.

96. I understand that the inspectors were unanimous in thinking that it would be a good thing if certain portions of the road, at all events, were wetted ; say that 100 yards were wetted, and then there might be 500 yards dry, and that it would not permeate more than 100 yards, or, at least, if you had 100 yards wet and then 500 yards dry, that would prevent the explosion going more than 500 yards?—That was their recommendation in 1896, but they did not adopt that at the subsequent date when the matter was referred to them ; and I understand that the question as to what dustless space is required for stopping an explosion has never really been settled, by experiment or otherwise, so that the distance suggested can only be an estimate.

Ventilation.

97. Then will you go to the question of method of ventilation?—The present law on the subject of the ventilation of coal mines is contained in Section 49 of the Act of 1887, the first General Rule, which requires that an adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases to such an extent that the working places, travelling roads, etc., shall be in a fit state for working and passing. It will be observed that this rule prescribes no definite standard, and that in each case it is ultimately left to a Court of Law, on proceedings instituted by an inspector, to determine whether the rule is complied with or not. I should like to hand into the Commission a table* of prosecutions which have been taken against owners, agents, and managers for inadequate ventilation under the Coal Mines Act, and also under the Metalliferous Mines Act, under a similar rule, during the ten years 1896 to 1905. 104 prosecutions were taken, 72 convictions were obtained, 4 cases were either withdrawn or returned as not proven, and 28 cases were dismissed. That illustrates, I think, the difficulty which attaches to proceedings for inadequate ventilation under that rule. After the Elba Colliery explosion in 1905—an explosion which was due to defective ventilation—the Home Office was not able to secure a conviction. I ought to say that the case was dismissed on the ground that the temporary defective ventilation to which the explosion was due was held by the Court to be the act of one of the minor officials, for which the management could not be held to be responsible in the circumstances ; but I believe the inspector was of opinion that the ventilation of the colliery was generally insufficient. However, you will probably get information upon that from the inspector. Then the question of ventilation came up in an acute form in connection with the MacLaren Colliery explosion in 1902, and I refer the Commission to the published reports of Mr. S. T. Evans, who represented the Home Office as counsel at the inquest, and of Mr. Martin, the Home Office inspector. It came out in the evidence at the inquest that throughout the working places of two levels the air current showed a cap of fire damp on the flame of the safety lamp of sometimes one-eighth of an inch in length, at other times a quarter of an inch, and even half an inch. This was not an explosive mixture, but indicated a very serious danger. I refer the Commission to Mr. Martin's remarks on that practice, and on the efforts he had made to induce the owners to recognise the appearance of any cap at all on the flame of a safety lamp as indicative of danger. The Commission will find those remarks in that report. At the annual meeting of inspectors in 1903, the Secretary of State referred the question to them for their consideration. He asked the inspectors to consider whether it was possible to propose any fixed rule as to the size of the "cap" upon a lamp which should be considered indicative of danger, and to determine the moment when the withdrawal of workmen should be made compulsory. The inspectors, in reply, submitted the following recommendations and opinions :—"The inspectors think that any cap on the flame of an ordinary safety lamp in the air current in which men have ordinarily to work or pass should be considered indicative of danger, and workmen should be withdrawn from such current." "The inspectors are of opinion that General Rule 1 is not complied with when an air current shows a cap on the flame of the lamp, and that ordinary work should not be allowed under such conditions." "The absence of a cap on the flame of a safety lamp should be the standard of adequate ventilation." I understand by "any cap" the inspectors meant a clear and distinct cap. It seems evident that the safety lamp in ordinary use in a mine can be, for practical working purposes, the only test which the miners can be supplied with, and to that extent the Home Office agreed with the recommendation of the inspectors. But the Home Office had to bear in mind the following conditions. The first was that the Secretary of State has no power under the Act at present to prescribe a standard of ventilation, or to lay down any hard and fast rule as to what is to be considered adequate ventilation. The standard recommended by the inspectors, which I have just quoted, could only be enforced by proving to a Court in any particular case that the appearance of a cap brings the mine within the terms of General Rule 1 as to adequate ventilation, and General Rule 7, which requires the withdrawal of the men in case of danger ; and the Court would not be likely to accept such a standard simply on the ground that it was the only workable one. They would require the prosecution to prove that the amount of fire damp indicated by the cap was such as to make the road or working place unfit for working or passing (General Rule 1), or to make that part of the mine actually dangerous (as specified by General Rule 7). The second consideration was this : the appearance of a cap on the flame of a safety lamp varies to some extent according to the kind of lamp, and according to the kind of oil used. Some lamps, and sometimes lamps of a better quality, show a cap more readily than others. The inspector for the southern district in 1904, in connection with this question, mentioned a case to the Home Office where men were supplied with lamps burning mineral oil which showed a quarter-inch cap when no cap at all was visible on the flame of a colza oil safety lamp used by the examiners. It is possible, therefore—I mention this incidentally—that the effect of any hard and fast rule might even be to militate against the introduction of better kinds of lamps ; at least, that was a consideration which presented itself in this connection to the Home Office. On the other hand, as I have just mentioned, it seems clear that the only practical guide to men working in the mine is the indications furnished by the ordinary safety lamp in general use in the mine. In view of all these circumstances, the Secretary of State issued instructions to the inspectors that, while he could lay down no hard and general rule on the matter under existing powers, the inspectors were to consider the standard they had suggested as the standard to be aimed at, and should endeavour to get owners and managers to adopt it. At the end of 1904 the Secretary of State called for a report from the inspectors as to the progress they had been able to make in securing the general adoption of a standard so recommended. If the Commission wish, I will briefly read the reports received from the different districts.

98. I think you had better give a short account of them?—Mr. McLaren, the inspector for the East Scotland district, says: "The rule in my district is that if

* Appendix IV.

Digitized by Google

the fireman, when inspecting in the morning, finds the least gas which he cannot clear away in a place, the workmen are not allowed to proceed to work, and if gas, even a small quantity, at any time during the shift is found, the men are withdrawn. In none of the mines is a blue cap found in the air current ventilating the workings, as such a state of matters would not be allowed to exist."

Mr. Martin reports that, "the presence of fire damp to such an extent that a 'cap' is noticeable in the flame of an ordinary safety-lamp burning colza oil is recognised in this district as necessitating the withdrawal of the men ordinarily employed."

For the Yorkshire district the inspector says: "At all the collieries the appearance of a cap on the flame of an ordinary lamp is considered by the officials as indicative of danger necessitating the withdrawal of the men."

With regard to the Midland district, Mr. Stokes says: "The appearance of a gas cap on the flame of an ordinary safety-lamp held in the ventilating current of a miner's working place has generally been considered as indicative of danger, and a standard which necessitated the withdrawal of the men, but this does not apply to exceptional cases such as goaves, high holes in the roof, or where heavy falls have obstructed the ventilation, and where work must be done to restore the ventilation or remove the gas."

For the Durham district the inspector reports: "The practice in this district is to withdraw the workmen if a cap is found on the flame of an ordinary safety-lamp. No person would be allowed to work where gas was visible unless it be for some special purpose such as removing a fall," and so on.

Mr. Ronaldson, the inspector for the West Scotland district, says: "It is now a very rare thing to come across instances of the air current in any part of a mine being so laden with fire damp as to show a cap on the flame of an ordinary safety-lamp. It is several years since the last case of this kind came under my observation, and the men were at once withdrawn until the defect was remedied."

For the Manchester district the inspector reports: "I have had no difficulty in my district. Whenever the question has arisen the parties have agreed that a cap on the lamp requires the withdrawal of the men."

The inspector for the Staffordshire district says: "The colliery managers with whom I have discussed the question agree that such a standard when applied to workmen other than those engaged in removing the gas or improving the ventilation is a proper one, but I am not prepared to say it is always maintained in the case of small caps. . . Whilst the absence of any cap is the standard aimed at, I do not think it would be possible to obtain a conviction in proceedings taken on account of a small cap, even if its existence was admitted."

The inspector for the Liverpool and Cheshire district says: "It is usual here to consider a 'cap' of this kind to indicate that the ventilation is not adequate as required by General Rule 1, and managers generally fall in with this view, but a prosecution against the Bensham Colliery some years ago failed on the ground chiefly that the gas was not explosive. The cap, of course, varies in size, from the hardly visible to one quite definite and perhaps an inch long. It is difficult to get everyone to take the same view of its danger, and I cannot say that the men are withdrawn in all cases, but I try on every occasion to impress the officials with the wisdom of that course."

The inspector for the Cardiff district, Mr. Gray, says: "In two or three instances last year the workmen were withdrawn after a cap had been found and pointed out to the manager by an inspector. It is very difficult to get the owners and managers to recognise the standard of safety, and I am sure it will take a very long time to bring about its general adoption."

The inspector for the Swansea district says: "In some few cases during the past year men were withdrawn after an inspector had discovered the appearance of a cap, and had directed the attention of the manager to the necessity for such withdrawal. In general, while I am unable to report any material progress towards getting a recognition of the standard by owners and managers, its discussion is gradually leading to improved ventilation."

Lastly, the inspector for the Newcastle district says: "Since the recommendation was made no occasion has arisen when I could have brought it forward."

Mr. M. Delevingne.

27 June 1906.

99. Does that rather raise questions between colza oil and mineral oil, as showing that mineral oil is the best indicator?—Apparently in that case the inspector mentioned the mineral oil showed a cap when the colza oil lamp did not.

100. On the other hand colza oil is supposed to be the safer?—Low flash oil would, no doubt, be dangerous, but it is not, the inspectors say, extensively used in safety lamps, and no accidents underground have been reported from its use.

100A. The question has been gone into at great length by the Accidents in Mines Commission, and it seemed to me that there were reasons for preferring colza oil to mineral oil as a general rule?—I am not sure about it. Perhaps the Commission would get that information from the inspectors.

101. (*Mr. Smillie.*) Did you say that the inspector, prior to the MacLaren Explosion, had found gas in two places in the mine?—I did not state that, but I believe that was the case.

102. I think his evidence was that he had found it for 500 yards in the return airway—that is, capped the whole distance—but I did not know whether you had mentioned that he found it in two places?—I did not mention that in my evidence. This is an extract from the report of Mr. S. T. Evans, the Home Office Counsel: "On several occasions in 1900, 1901, and 1902 Mr. Martin, H.M. Inspector, had drawn the attention of the colliery owners and their manager to the presence of gas in the mine at the time of official inspection by his assistants, and to the general ventilation of the workings. . . . Mr. Martin has consistently pressed upon colliery owners and managers in his district, and amongst them upon the management of this colliery, that whenever the air current passing through the workings, or parts of the workings, showed any appreciable cap upon the flame of the safety-lamp, the men should not be allowed to work in that neighbourhood until the gas had been diluted so as not to show a cap at all."

103. And Mr. Martin's report is that the men are withdrawn where it shows a cap?—I think that was the effect of what I have read out. The general result of these letters, I think, is that throughout most of the country, with the exception of the two South Wales districts, the presence of a distinct cap on the flame of an ordinary safety-lamp is recognised as indicative of danger. The question which the Home Office would gest to the Commission is whether any general rule, either by reference to the presence of a cap or otherwise, could be laid down as to what should constitute adequate ventilation for the purpose of General Rule 1.

Safety lamps.

104. (*Chairman.*) Now we come to the question of safety-lamps?—In connection with the question of safety-lamps, I would hand in a table* showing the number of explosions from fire-damp or coaldust, and the number of persons killed or injured by these accidents at mines under the Coal Mines Act during the years 1896 to 1905. Out of a total of 720 persons killed and 2,048 persons injured by explosions during those ten years, 258 were killed and 1,664 were injured through the use of naked lights. I would also hand in a report showing for each inspection district during the last ten years the number of explosions from fire-damp or coaldust, and the number of persons killed and injured at mines under the Coal Mines Act. That would enable the Commission to compare the different districts with one another. As regards the use of safety-lamps, perhaps I might mention that that is regulated at present by General Rule 8, in Section 49 of the Coal Mines Act, which says that "No lamp or light other than a locked safety-lamp shall be allowed or used: (*a*) In any place in a mine in which there is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous; or (*b*) In any working approaching near a place in which there is likely to be an accumulation of inflammable gas." The inspectors have from time to time called the attention of the Home Office to the indefiniteness of this rule, and have suggested that some more definite provision should be laid down. In 1894 and 1895 the Home Office

* Appendix V.

Digitized by Google

Mr. M. Delevingne.

27 June 1906.

attempted to get a special rule established in South Wales requiring safety-lamps to be used in any district of a mine in which fire-damp is liable to make its appearance in explosive or dangerous quantities, as being a rather more definite rule than that provided by the Act. That was objected to by the owners. The matter was taken to arbitration along with other proposals by the Home Office for the amendment of the Special Rules in South Wales, and the Home Office finally had to abandon the proposal with regard to safety lamps. In 1896 the Coal Mines Act of that year was passed, and it provided that the nature and description of the lights and lamps to be used in the mine might be prescribed by Special Rules. The inspectors recommended in 1896—but the recommendation had to be dropped while the Explosives in Coal Mines Order was going through—and again in 1899, that the test as to whether safety lamps ought to be used or not should be the number of ignitions of firedamp; for example, that "no naked light should be used in any ventilating district of a coal mine in which three separate explosions or ignitions of fire-damp had occurred within the preceding 12 months." That was the suggestion which the inspectors made to the Home Office. The Home Office was not altogether satisfied with a rule in those terms, as it would quite clearly exclude many cases in which it would be most important to require the provision of safety lamps; and there were some other objections in detail. Then subsequently in 1899 to 1901, in connection with the Special Rules for timbering, the Home Office put forward this rule for negotiation with the owners: "No lamp or light other than a locked safety lamp shall be used in any seam of a mine in which, after the date of this rule, any ignition of inflammable gas occurs, or in which there is likely to be such quantity of inflammable gas as to render the use of naked lights dangerous." This was rather more stringent than the inspectors' proposal, and was strongly opposed by the owners, and in order to get the timbering rules through, and to avoid a lengthy and expensive arbitration, the Home Office dropped it for a time. The matter, however, was taken up in some of the individual districts; and in the Liverpool and Manchester districts, and also in the Staffordshire district, if not in others, special rules have been established on the subject. Perhaps I might read to the Commission the special rule which has been established in the Liverpool and Manchester districts: "The manager shall see that locked safety lamps only are used in every coal seam of the mine to which these special Rules apply in which an explosion of inflammable gas causing any personal injury whatever has occurred within the previous 12 months, or in which, within the same period, such a quantity of inflammable gas had been found as to render the use of naked lights dangerous." The rule in the Staffordshire district (I am quoting from the code of the Cannock Chase part of the district) is: "The manager shall see that locked safety lamps only are used in every ventilating district (as defined in the Act) of the mine to which these special rules apply in which an explosion of inflammable gas causing any personal injury whatever has occurred within the previous six months, or in which, within the same period, inflammable gas has been found in such quantity as to be indicative of danger." In both rules there was an exception to allow the use of naked lights in main intake airways within 200 yards from the pit bottom. The Annual General Reports have called attention for some years to the fact that the explosions from the use of naked lights are far more numerous in proportion in Scotland and the South Wales districts. I might mention a case in which the Home Office some years ago secured in a mine in Scotland the adoption of safety lamps in the place of naked lights after arbitration. It was represented a short time ago to the Home Office that no fire-damp had appeared in the mine for some time, and both the owners and the men desired to cease the use of safety-lamps. The management urged that they were handicapped by the restriction as compared with other mines in the district, where similar conditions existed, and that men refused to take employment in the mine when they heard that safety-lamps were used. The Home Office could not consent to that, in view of the past history of the mine, but was not able, in view of the circumstances and the provisions of the Act on the subject, to resist it. The suggestion of the Home Office for the consideration of the Commission is whether any more definite rule can be laid down than that which exists at present in General Rule 8 of the Act. I will deal now, with your permission, with the question of the construction of safety lamps. The only existing statutory provision on the question of the construction of safety lamps is that contained in General Rule 9, that "the safety lamp must be so constructed that it can be safely carried against the air current ordinarily prevailing in that part of the mine in which the lamps are for the time being in use, even though such current should be inflammable." No means is provided, however, by which lamps can be tested officially for the purpose of seeing whether they comply with that rule, or generally whether they are safe for use in fiery mines. The Act of 1896 gave power to make special rules in regard to the nature and description of lamps to be used in the mine, and by such rules to override the provisions of any general rule.

105. (*Mr. Ratcliffe Ellis.*) Do you notice the provision in Rule 10 of the Act of 1887: "A competent person appointed by the owner, agent, or manager for the purpose shall, either at the surface or at the appointed lamp station, examine every safety lamp immediately before it is taken into the workings for use"?—I said "examined officially," or "tested officially." By "officially" I meant on behalf of the inspectors and the Home Office.

106. (*Sir Lindsay Wood.*) Do you mean testing the description of lamp, but not the actual lamps themselves?—I ought to say, perhaps, the testing of the class of lamp.

107. Do you mean the testing of every lamp every day?—No—not officially. When I said that there is no means of enabling lamps to be tested officially, I meant the class of lamp, not each individual lamp.

(*Mr. Ratcliffe Ellis.*) You see you have a provision by Rule 9 that it should be properly constructed so that it may be safely carried against the air current, and then in Rule 10 you have the provision that a competent person is to examine every safety lamp immediately before it is taken into the workings for use.

(*Mr. Smillie.*) Is not that in order to see whether it is sound and not broken, but not to see whether it is a proper lamp or not?

(*Mr. Ratcliffe Ellis.*) To see whether it is safe to burn in the workings.

(*Mr. Enoch Edwards.*) The point raised is not that: it is to see whether it is a safe lamp.

(*Witness.*) The point I wish to lead up to is the question of the testing of a particular description of lamp.

108. (*Mr. Smillie.*) Of a certain standard?—Yes.

109. (*Sir Lindsay Wood.*) That is what I thought you meant—the testing of the description of lamp?—Yes.

110. Not as to the using of the actual lamp?—No. That, of course, is a duty which rests, under the Act and the special rules, on the management of the colliery. I am not suggesting any alteration of that.

111. (*Chairman.*) That the particular class of lamp would be officially certified as being a lamp to be allowed?—Yes, as a safe description of lamp for use in a fiery mine. So far no general proposal has been made by the Home Office under this new power in the Act of 1896 with regard to the construction of lamps except a proposal with regard to the means of locking. I do not know whether the Commission would like me to refer to that matter briefly—it is a minor point.

112. You refer to the screw-lock, I understand?—I refer to the question of the use of screw-locks. In the Safety Lamp Rule put forward by the Home Office, to which I referred just now, a provision was inserted that all safety lamps should be provided with locks incapable of being surreptitiously opened without detection. That rule, however, as I explained, was dropped for the time, but the question of the abolition of the use of screw-locks was taken up again in 1902. The screw-lock is a lock which can be easily opened by the miner without detection. In that year, 1902, an explosion occurred at a South Wales colliery, the Fochriw Colliery, by which nine men were killed. Lamps with the ordinary screw-lock were in use at the colliery. Two of the men killed were supposed to have unfastened their lamps, and gas is supposed to have been ignited at the exposed flame. The inspectors were instructed to approach the owners on the subject, and they re-

Digitized by Google

ported in 1904 that the progress made was satisfactory, and they were encouraged to think that the object could be attained without special legislation. This hope, however, has not been entirely fulfilled, though in most districts a screw-lock is wholly or almost done away with. In two districts, the Newcastle and Midland districts, there are still a considerable number of lamps in use, in the one 22,000 and in the other 24,000, with screw-locks. Of course, the Secretary of State could have dealt with the matter by a special rule, but in view of the appointment of a Royal Commission and the fact that there were other matters which would shortly have to be dealt with by special rules, the Home Office deferred the actual proposing of a special rule on the subject to the owners for a time.

113. You suggest that the screw locks should not be allowed?—The suggestion is that the screw locks and all locks which can be opened by the miners surreptitiously should be prohibited.

114. You make no suggestion as to the lock which should be used?—There are several locks which are perfectly efficient for the purpose. The most important question which the Home Office would suggest for the consideration of the Commission in connection with safety lamps is whether any system of testing safety lamps for use in mines should be established, and the use of safety lamps in mines prohibited which do not pass the test.

115. (*Mr. F. L. Davis.*) You mean an official test?—Yes, an official test. A number of experiments were carried out by the Royal Commission on Accidents in Mines in 1886 as to the different kinds of safety lamps, and I refer the Commission to their report on the subject. They made a recommendation which did not apparently go quite as far as the suggestion which the Home Office would put before the Commission, but they made a suggestion "that it would be desirable for the Government to maintain an apparatus such as we have used in our experiments, and to appoint some person to test and to report to the Secretary of State on any lamps which may be submitted to him." A testing station for safety lamps, as the Commission would perhaps like to know, has been established in Belgium, and some account of it will be found in the report which was made last year to the Home Office by two of the inspectors of explosives who visited Belgium.* On the question of the differences between different kinds of safety lamps and the inferiority of some lamps, the Commission will obtain expert evidence from the inspectors, but I might perhaps notice that during the last ten years the Bryncoch explosion in South Wales was due to a bad type of safety lamp, and also that the Clydach Vale explosion of last year was attributed by the inspector to gas exploding in a Clanny single-gauze bonneted lamp, which, I believe, is supposed to be much less safe than some other kinds of lamps. In connection with that explosion the inspector also calls attention to the danger of the use of glass in a safety lamp, and also to the question of the defective attachment in that case of the gauze to the lamp. I might refer the Commission also to the remarks of the inspector of the Manchester District in his recently published report for 1905, and the statistics which he gives there of the number of the different kinds of safety-lamps in use in that district. The suggestion which the Secretary of State would wish to put before the Commission is whether there should be some official test established for the purpose of determining what classes of safety-lamps should be used in fiery mines.

Shot-firing.

116. (*Chairman.*) Now will you deal with the question of shot-firing?—The use of explosives in coal mines is now regulated by General Rule 12 of the Act of 1887, and the Explosives in Coal Mines Order made by the Secretary of State under Section 6 of the Act of 1896, dated 26th December, 1902, as amended by some subsequent Orders on points of detail. I presume the Commission will have copies of these Orders before them. Roughly, the general effect of the provisions of the Rule and Order is that in dry and dusty and fiery mines only explosives which have passed the Home Office test may be used, and special precautions as to examination for gas, watering, mode of firing, etc., are prescribed. In addition, certain general precautions applicable to all coal mines are laid down by the Explosives in Coal Mines Order in regard to detonators, which have been found a fruitful source of accidents both in and out of the mines. The statistics of explosions caused by shot-firing since the first Order of the Secretary of State came into force after the passing of the Act in 1896 show a considerable decrease. A table will be handed in to the Commission showing that. I might add that the Secretary of State at the present moment has under consideration the question of prescribing additional precautions by a fresh Order under the Act of 1896 with regard to the mode of firing shots in dry and dusty and fiery mines, especially the prohibition of the use of safety fuses except such as have passed a prescribed test. He also proposes to lay down additional precautions to be observed in connection with electrical firing and with regard to examination for gas before a shot is fired. That Order is now under consideration, and the terms of it have not yet been settled, but it will probably be issued quite shortly. Further, I might state that a Departmental Committee of the Home Office is now engaged in inquiring into the safety of certain classes of explosives which are known as non-detonating or slow explosives, of which the best-known example is Bobbinite. I presume that it will not be necessary for me to go into questions arising upon those Orders. The only suggestion that the Home Office would have to make is, I think, on a point of detail, that it would probably be desirable that all the regulations in regard to shot-firing, both those contained in the General Rule and in the Explosives Order, should, if possible, be consolidated into a single code. At present the provisions of the General Rule and the provisions of the Order to some extent cover the same ground, and it would seem simpler, if possible, to have them all in one code. The chief point which the Secretary of State would suggest for consideration by the Commission in connection with shot-firing is how far it would be possible to prohibit shot-firing in dusty or fiery mines excepting in the intervals between the shifts, and in that connection I would call the attention of the Commission to the question which has arisen as to the observance of the precaution as to watering laid down by General Rule 12 in the neighbourhood of a shot. In the inquiries into some of the more recent explosions in the South Wales District, it came out that the requirements of General Rule 12 has not been fully observed, *e.g.*, the Universal Colliery Explosion in 1901. With regard to the question of shot-firing between shifts, this was a matter which was considered by the Royal Commission of 1894, and they recommended at the end of their report, as one of the precautions which they suggested should receive the special consideration of coal owners, that the firing of shots should be carried out between the shifts, and when the majority of the men are out of the mine. They did not suggest any rule being laid down, but they put it forward as a matter for the consideration of the owners. The question came up prominently at the inquest on the National Colliery explosion in South Wales last year. Evidence was given by the South Wales inspectors on the point, and the jury, in giving their verdict, added a rider to the effect that in their opinion shot-firing should be absolutely prohibited except between the shifts, and only shot-men should be in the pit at the time. The two inspectors who were present at the inquiry agreed with that recommendation of the jury, which seems, in fact, to have been founded on the evidence given by the inspectors, and they said in their report to the Home Office that so far as regards the mines in South Wales, shot-firing when all the men were in the mine should be prohibited by legislation. The matter came up for consideration before the whole body of the inspectors at their annual meeting this year, and they passed this resolution:—"While the inspectors think the restriction is desirable in many mines in which fire-damp is given off in large quantities, and others which are dusty, they cannot at present go so far as this proposal." The Home Office would suggest that as being the most important matter which has come before them for consideration in connection with this question, and they would wish to have the advice of the Commission upon it. The Home Office would also like to mention a minor matter which will probably be brought before the Commission, and I also mention it because it illustrates a difficulty to which I should like to call the attention of the Commission afterwards in connection with special rules; that is the question of shots which miss fire and which are a constant source of accident. I will hand in to the

* 1905—Cd. 2650.

Digitized by Google

Mr. M. Delevingne.

27 June 1906.

Commission such statistics as the Home Office has of accidents arising from miss-fire shots, and also a statement of the special rules in force on the subject in the different districts; that is, as to the way in which miss-fire shots are to be handled by the men and the officials. The Commission will see that the special rules show a great want of uniformity, and in some districts they are evidently quite inadequate. I think those are the only points which the Home Office wish to suggest for consideration on the question of shot-firing.

117. With regard to the question of the practice of miners taking home explosives, is there anything you have to say?—It might be convenient to mention that here, although it is a little off the line of my evidence. The Home Office would wish to call the special attention of the Commission to the practice of miners taking home explosives with them and storing them in their own homes. Numerous accidents have come to the notice of the Home Office in connection with this practice. There is also the point to be considered that if the miners are allowed to buy their own explosives there is a danger of explosives of an inferior quality being introduced into the mines. That is a special danger in the case of mines where permitted explosives which have passed the Home Office test are required to be used. The Explosives in Coal Mines Order which has been made by the Secretary of State specifies in great detail the exact composition of the explosives which are placed on the permitted list; and it is suggested for the consideration of the Commission whether, with a view to general safety and in order to secure or to assist in securing that in all cases permitted explosives of the prescribed composition should be used, it would not be desirable to require that the men should in all cases obtain their explosives from the owner. Perhaps I might mention to the Commission what the Home Office has done in the matter, and how far we have been able to carry it.

118. (*Mr. Wm. Abraham.*) I do not quite understand the meaning of taking the explosives from the owner. Do you mean that the miners should purchase their explosives from the owner?—Yes, that is the suggestion.

119. (*Chairman.*) Or, I suppose, from some place where it would be pretty clear that they must get some kind of explosive that was permitted by the Regulations?—Of course, the owner is responsible already for seeing that permitted explosives of the prescribed quality are used in the mine; but where the men purchase their own explosives there is the danger of an inferior quality of explosive being introduced.

120. I do not understand that. I should have thought there might be some sort of place in a mining district at which explosives could be got direct by the miners, and that they need not go to the owners for them—some sort of certified place where they might go and buy them?—Yes. That suggestion had not occurred to the Home Office in this connection, and I may point out that even if it were practicable to certify places for the purpose, it would not meet the danger caused by men taking explosives home. The action which the Home Office took in the matter was that in 1903 the Secretary of State referred the question to the Inspectors of Mines to consider whether it would be desirable to require that explosives for use in mines should be obtained by the miner from the owner of the mine only, and that the owner should provide a store for the purpose at the mine, and sell to the men the explosives they required, deducting, if so arranged between the owner and the men, the price from the men's wages: Further, where the men were required, either by the owner or under Special Rule, to bring out unused remnants of explosives from the mine at the end of their shift, whether they should not be required to return the unused explosive to the store instead of taking it with them to their homes. I may mention here that any deductions from the wages of the men for explosives purchased by them from the owner would be subject to the restrictions contained in the Truck Acts.

121. (*Mr. Wm. Abraham.*) If I understand it correctly, the suggestion is that the men should be compelled to purchase their explosives from the owner, and that the owner should be compelled to keep a stock of explosives for use?—That is the suggestion.

(*Mr. F. L. Davis.*) That is practically the practice to-day, is it not, generally speaking?

(*Mr. William Abraham.*) To some extent.

122. (*Chairman.*) You might get into great difficulty under the Truck Act?—The only real restriction would be that the owner would not be allowed to charge more for the explosive to the men than it actually cost him.

123. (*Mr. F. L. Davis.*) There is very great difficulty in administering that now, because he is not entitled to charge for storage. It is not merely what the owner pays for the explosive, but there is the expense of getting it up to the colliery, and there has to be a man there to store it. Should that be put into the cost?—It would be a question of the construction of the Truck Act as to whether the cost included that or not. Of course, the Home Office suggestion is entirely put forward on the ground of safety.

124. (*Mr. Enoch Edwards.*) I am not sure whether the inspectors would be at liberty to give information which I should like to have on this question, or whether the Home Office could do it. What portion of the coal is now got without blasting?—I could not give that information. I am not sure whether the inspectors would be able to give that without special inquiry.

(*Chairman.*) No doubt we shall go into that question by and bye.

(*Sir Lindsay Wood.*) I should very much doubt whether the inspectors would be able to tell you.

(*Chairman.*) However, we can deal with that afterwards.

125. (*Sir Lindsay Wood.*) I was going to ask you whether the Home Office draw any distinction between the men bringing explosives home, as to whether they take it with the detonators or without the detonators?—Under the Explosives in Coal Mines Order the collier is not allowed to have detonators in his possession.

126. Still, the Home Office recommend that they should not be allowed to take it to their homes?—You refer to the explosive?

127. Yes?—That is the Home Office suggestion.

128. (*Mr. Ratcliffe Ellis.*) That is prohibited now under the Explosives Act, is it not; a man is not entitled to have it in his possession?—If he obtains a police certificate he is allowed to keep a certain quantity of explosive. Might I refer the Commission to the Home Office instructions which the Commissioners have before them? At pages 17 and 18 there are the exact statutory provisions set out in detail, and the instruction on the subject issued to the inspectors.

129. It is sub-paragraph 4 of paragraph 68 of the instructions: "In any premises, up to 30 lbs. of gunpowder, or 10 lbs. of other blasting explosives, and 100 detonators, if kept only for private use and not for sale; but in the case of explosives other than gunpowder, subject to the condition that a certificate from the chief officer of police of the district has been obtained." So that with regard to any explosive other than gunpowder he could not keep it in the house at all except with a certificate from the chief officer of police?—Yes.

130. (*Mr. F. L. Davis.*) I presume the suggestion is made on account of safety, because I believe it is the fact that certain accidents have happened by reason of men taking explosives to their own homes, and an explosion has taken place in their cottages.

131. (*Mr. Smillie.*) 10 lbs. of other blasting explosive is quite sufficient to blow up the house, I think?—Oh, yes.

132. (*Mr. Ratcliffe Ellis.*) There has been an instruction issued in Lancashire prohibiting men taking explosives to their houses, and perhaps that is the case also in other districts?—I think the action which the Home Office has taken will appear in what I was proposing to put before the Commission. May I finish my account of the action which the Home Office has taken? I should like to state what has happened since 1903. The inspectors, in reply to the reference of the Secretary of State, recommended that not only explosives coming under Section 1 of the Explosives in Coal Mines Order, but all explosives for use in mines should be obtained by the miners from the owner of the mine only, and that the owner should provide a store for the purpose near the mine. They thought that men's clubs might be allowed to supply explosives under the same regulations as apply to the mine owners. On that recommendation the Home Office communicated with the Mining Association, and asked them to ascertain from the local associations whether they agreed with the recommendation of the inspectors, and also

Digitized by Google

whether the changes proposed would be approved by the men. We were informed by the Mining Association that the subject was referred to the local associations and replies were sent to the Home Office in January, 1904, which perhaps I might briefly summarise. In Northumberland and Durham the owners did not object to the proposal of the Home Office, but they did not see the necessity of storing unused explosives so long as the men did not take detonators home. In Lanarkshire the owners saw no occasion for any change. In Lancashire and Cheshire the owners entertained no serious objection. In the Midlands the owners said they had no recommendation to make. In North Wales the Home Office proposal was already in force, and the owners thought that no exception should be made in favour of men's clubs, which they thought would be a source of danger. Replies were not received from the other districts. Having regard to this difference of opinion, the Home Office thought that no general action was possible at the moment, but asked the inspectors to take up the subject in their separate districts with the owners, and try to arrive at some agreement. As a matter of fact, in the majority of collieries, as the inspectors reported in 1904, workmen already obtained explosives at the colliery store. Subsequently the Home Office obtained further reports from the inspectors as to the progress which they had made; and if the Commission wish me to do so, I could briefly give them the result.

133. (*Chairman.*) Yes?—The Home Office last year sent to the inspectors a circular asking them the following questions: First, how far is it already the practice for owners to supply explosives? The gist of the replies of the inspectors was that except in Scottish collieries the practice seems fairly general; in some districts the practice is almost universal, and in all districts, except Mr. McLaren's and Mr. Ronaldson's, owners are said to supply explosives in the majority of cases. The second question was, What opposition would be likely to be aroused if the owners were required to supply explosives? The reply was that in Scotland the inspectors do not think there would be much opposition from the owners, but the men are opposed to such a system, one reason given being that they now purchase from co-operative stores, in which, of course, they themselves are interested. In other districts no serious difficulty was expected, except in the case of small mines and quarries. These replies, I should add, refer to explosives other than gunpowder. In cases where gunpowder is used, it is not usually supplied by the owner. I think that is briefly the result.

134. (*Mr. Smillie.*) Is that the report of the Scottish inspectors?—That is the report of the inspectors as regards Scotland. Since the Home Office action which I have just described, the matter has come into prominence in connection with an accident in South Wales a few weeks ago, where four people were killed in a collier's house, as the result of a collier putting gelignite, which he had brought home from the colliery, in the oven to thaw. Any requirement of this sort would necessitate legislation; the Home Office powers under the present Act are hardly sufficient to deal with the matter entirely. Perhaps it would interest the Commission if I put in a copy of a circular which the Home Office has quite recently issued to the police authorities throughout the country upon the question of their issuing certificates to miners for the keeping of high explosives in their own homes. The Home Office has recommended that a certificate should never be given to a miner unless he satisfies the police that he has a place of storage entirely under his control, and so secure at all times as to prevent the explosive being accessible to children or other unauthorised persons, and that he is otherwise a fit person to have charge of explosives; and also, where the explosive contains nitro-glycerine, that he is in possession of a properly designed warming-pan and uses it during the months of December, January, February and March, and at other times during the prevalence of cold weather.

135. What do you mean by "satisfying the police"?—The police issue the certificates, and applicants would have to produce evidence that they fulfilled the requirements.

136. (*Mr. Ratcliffe Ellis.*) It is provided that no high explosive can be stored in the house without the certificate of the police?—That is so.

137. And that under no circumstances can more than 10 lbs. be stored with the certificate of the police?—That is so. *Mr. M. D Iwingne.* 27 June 1906.

138. The paragraph in the Home Office instructions says: "In any premises, up to 30 lbs. of gunpowder or 10 lbs. of other blasting explosives and 100 detonators if kept only for private use and not for sale, but in the case of explosives other than gunpowder, subject to the condition that a certificate from the chief officer of police of the district has been obtained." You may store 30 lbs. of gunpowder without the certificate of police, but the storage of 10 lbs. of other explosive is allowed only with the certificate of the police, and you cannot with the police certificate store more than 10 lbs. of other explosives. That is the meaning of that paragraph?—Yes, that is so. That is the reason why the Home Office has recently issued this circular which I have just put in.

139. In order to have 10 lbs. of high explosive he must have the certificate of the police. That, I think, is the meaning of the clause?—A collier can keep up to 30 lbs. of gunpowder without any permission at all; he can keep up to 10 lbs. of high explosive if he gets a police certificate.

140. Yes; but he cannot have the high explosive at all without the police certificate, and he cannot have more than 10 lbs. with it?—That is so.

141. (*Mr. Smillie.*) Are the Home Office going to put forward any proposals as to the lighting of two or three or more shots at once? Has their attention been called to any case in which three or four shots may have been lighted at the same time by one person and not all of them have exploded?—Yes, cases have been reported to the Home Office. I also remember a case last year in Scotland where a body of Italian miners were driving a stone drift; they lighted a number of shots at the same time and a serious accident happened, one of the party being killed by a stone projected from a shot which went off while the men were retiring. The matter was referred to the inspectors, who were of opinion that it was necessary in driving a stone drift and in sinking to fire a number of shots at the same time, but that accidents from this practice are very infrequent, and that it was not desirable to prohibit the practice entirely. Might I add, in connection with the suggestion of the Home Office as to owners supplying explosive, that a difficulty has sometimes arisen because the owner's store is at some distance from the pit's mouth, and inconvenience is caused to the men by having to go to the store in the morning and to return to it in the evening. The Home Office has suggested that in such cases the owner might very well provide a small store or registered place at the pit's mouth, which could be opened every morning and evening for the issue of explosives and for the reception of any unused explosives which the colliers brought out of the mine. That has been done in some cases, and it has had the effect of getting over the difficulty in question. That is all I have to say upon that subject.

142. (*Chairman.*) Now will you deal with the subject of timbering?—I will hand in to the Commission a series of tables* showing the number of accidents which have occurred in the last 10 years from falls of ground, classified according to the places at which they happened, the death rate per 1,000 persons employed from such accidents, and the death rate per 1,000,000 tons of minerals raised; also further tables showing the same figures for the different districts. During the years 1901 to 1904, as the result of negotiations between the Department and the industry, new special rules were proposed on the subject, and came into force. Those rules made provision for four things: (1) Systematic timbering of the roof at the working face, the distances between the props being fixed by the management; (2) systematic spragging of the coal at distances not exceeding 6 ft., or less if required; (3) a sufficient supply of timber for use by the miner near to the working place; (4) use of proper appliances for withdrawing timber from the waste. It was hoped that the introduction of these rules would have been followed by a considerable diminution in the number of accidents; as a matter of fact exactly the opposite has happened. As regards the results which the Home Office expected from these rules, I would put in a Home Office circular issued *Timbering.*

* Appendix VI.

Digitized by Google

Mr. M. Delevingne.

27 June 1906.

to the owners at the commencement of the negotiations. The tables which I have handed in will show the Commission the number of deaths from falls during the last 10 years. The Commission will see from those tables that a great increase in the number occurred in 1903; in that year 567 persons were killed underground by falls of ground, as against 452 in the preceding year; 482 in 1901, 493 in 1900, and 437 in 1899. Some improvement was observable in the year 1904, the number of deaths falling to 512; but this was still considerably in excess of previous years, and the improvement was not continued in 1905, when the number of deaths was 515. I should like to call the attention of the Commission to the fact that no satisfactory explanation has so far been given for this large increase in 1903 and the two succeeding years. So far as regards the rules established by the Home Office, the increase seems to have no special connection with the rules. About half the increase in the year 1903 occurred at the working faces, where the rule as to systematic timbering applies; the other half occurred on the roads where the rules do not apply. Again, the increase was not general over the whole of the country; half the districts showed an actual decrease in 1903, or only a very slight increase, while one district where the rules had not then come into force also showed an increase. The subject was referred to the inspectors at their annual meeting, and the Commission will find a discussion on the subject in the Annual General Reports for 1903 (p. 79) and for 1904 (pages 80 and 81). I do not know whether I need read the paragraphs; the matter is there gone into in some detail, and it will be before the Commission.

143. Were any general conclusions arrived at?—One or two points came out clearly. One was that in a good many cases the management of the mine had fixed an absurdly large distance under the first of these rules, the one which refers to systematic timbering. The requirement is that the management is to fix the distances between the props, which is not to be exceeded, and in more or less numerous cases distances which were far too great were fixed by the management. Since then the inspectors have done a good deal to get those distances reduced, and in the special rules recently established for Monmouthshire, I think a provision has been put in that the distance is to be a reasonable one. The inspectors also suggest as a possible cause of accidents that the men are perhaps too much inclined to rely on the stipulated distance fixed by the management for setting props without exercising their own individual judgment, and setting props at shorter intervals, when the state of the roof requires it. The inspectors recommend, as one means of further reducing the number of falls, that the management should exercise much stricter supervision of the timbering during the shift, and that at least two inspections of every working place should be made in the course of a shift. In connection with this question of timbering, the Home Office would refer the Commission to the report which was made in 1901 by four of the inspectors of mines in regard to the system of timbering in force at the Courrières Colliery in France.* A system of systematic timbering there, different from the English system, has been in force for some years, and has been followed by a very remarkable decrease in the death rate from accidents caused by falls of ground. During the period from 1890 to 1899, the death rates from falls of ground at Courrières for every 1,000 persons employed was 0·15. In England during the last five years the death rates per 1,000 persons employed has been 0·74, 0·68, 0·83, 0·75, 0·75—or five or six times as heavy as the rate at Courrières.

144. (*Mr. Ratcliffe Ellis.*) May I ask whether you have any statistics as to what the condition of things was in France at Courrières before this system was adopted?—I think that information will be found in the Report. The roof at Courrières is an extremely bad one, and it is because of the badness of the roof that this special system of systematic timbering was introduced by the management at Courrières. It illustrates what can be done by systematic timbering in very difficult circumstances.

145. But have you any comparison of the state of things as it existed before this system was adopted, and the state of things after?—The average death rate at Courrières from 1870 to 1879 was 0·76 (that is about the same as the English death date); from 1880 to 1889 it was 0·24; from 1890 to 1899 it was 0·15.

146. (*Chairman.*) I see it appears at p. 12 that three of our English mines show results equally good?—Yes, the inspectors do say so.

147. Then it would rather appear as if the first rule was to some extent responsible for an increase in the accidents, because it apparently led the miners to have a false sense of security?—That is suggested by the inspectors as one of several possible causes, but they are not of opinion that that is the only or even the main cause. In fact, they are really at a loss to suggest what the actual reason for the increase is. Perhaps I ought to explain to the Commission that the tables which I have handed in show that although the actual number of falls has been very large during the last three years, it is not so serious when you take the death rates. During the last three years there has been an increase both in the number of persons employed and in the amount of mineral raised, and the death rates for the last ten years per 1,000 persons employed have been 0·76 in 1896, 0·86 in 1897, 0·76 in 1898, 0·75 in 1899, 0·79 in 1900, 0·74 in 1901, 0·68 in 1902, 0·84 in 1903, 0·75 in 1904, and 0·75 in 1905. So that practically the death rate is the same in 1905 as it was ten years ago. Similarly, in the case of the rates per 1,000,000 tons of mineral raised (which is perhaps the best proportion to take), in 1896 the death rates from accidents from falls of ground per 1,000,000 tons of mineral raised was 2·03, the next year it was 2·23, the next year 2·0, the next year (1899) it was 1·87. in 1900 it was 2·07, in 1901 2·08, in 1902 1·89, in 1903 2·33, in 1904 2·08, and in 1905 2·06. So that except for 1903, when it rose to 2·33, the death rate per 1,000,000 tons of mineral raised has remained fairly steady. But there has been no improvement consequent upon the introduction of the timbering rules. Before passing from that subject, I might refer the Commission to a report made by a Prussian Commission which visited both France and England to inquire into the rules with regard to the prevention of falls of ground. I put that in for the information of the Commission.†

148. (*Mr. Smillie.*) Have the miners themselves been consulted by the Home Office, or have they been taken into the confidence of the Home Office with regard to special rules for their own protection, or has it only been the employers that the Home Office has consulted, and not the miners?—Do you mean generally or with regard to this particular matter?

149. Either through their officials or at the collieries?—It depends. There are two procedures for the establishment of special rules. Under one the owners propose the rules, and in that case they have to post the rules at the mine for a certain period, so that the men can make any objections they wish to the inspector. Under the other system, the Secretary of State proposes rules to the owners, and they come into force automatically, unless the owners object.

But the miners, the men who are most concerned, and really whose lives are concerned, have no voice at all?

(*Mr. Ratcliffe Ellis.*) In Lancashire, when the rules were established, there were meetings of the representatives of the employers, of the representatives of the miners, and of the inspectors, and we discussed them together, and made a recommendation upon them.

(*Mr. Smillie.*) But not at the instance of the Home Office. The Home Office has never taken the miner into consideration at all.

(*Mr. Ratcliffe Ellis.*) There was a joint meeting arranged between the representatives of the men and the representatives of the employers.

150. (*Mr. Wm. Abraham.*) So far as South Wales was concerned, we were allowed to appear at the Home Office and to meet inspectors?—The Home Office inspectors, certainly.

151. (*Mr. Enoch Edwards.*) The inspector of Stafford would consult with us on all those questions?—Yes. I think that is so generally, and it is the wish of the Home Office.

(*Mr. Smillie.*) I may say that our men have never been consulted upon the question at all, and I think that the miners might be able very often from their experi-

* 1901—Cd. 509. † An abstract published in 1905 by the proprietors of the "Colliery Guardian."

Digitized by Google

ence to suggest certain methods of timbering for safety in mines.

152. (*Mr. Enoch Edwards.*) I should like to put a question with regard to the accident which happened at Courrières. That colliery is a very large concern. Do you know whether the men there work by day or by ton?—I am afraid I could not answer that. But Mr. W. N. Atkinson, one of our inspectors, who is over there now, in fact, will no doubt be able to give you that information.

153. There is another point. You say the inspectors had their meeting to consider the effect of their special rules?—The Secretary of State referred the matter to them for their consideration, to suggest, if they could, what the causes of this increase in 1903 were.

154. The timbering rules?—Yes.

155. Do you know whether, during that year, they took into consideration the large number of new and inexperienced men who came into the pits during that period? You know during the period of the war, and just after it, there was a great influx of new men, of raw material.

156. (*Mr. Ratcliffe Ellis.*) Not at the face. That would be contrary to the Act of Parliament?—That particular suggestion was not made, but, of course, with every particular increase of output and men employed, it means that new men are employed who are less experienced; and that, no doubt, was one of the causes of the increase in those years.

(*Chairman.*) The great increase was from 1903, so that it would not seem to have been specially attributable to the fact of there being unskilled men employed who went into the mines during the war.

157. (*Mr. Enoch Edwards.*) During that time there was a great increase; we are now taking the whole of the period. I gather from the statement made as to the operation of the rules, that in some districts there has been a less number of accidents, and in others a greater number?—Yes, in some districts, since the operation of the rules, there has been either only a slight increase or an actual decrease.

158. And in those districts it is possible that you might have a considerable increase?—Would the Commission like me to hand in the draft of the rules agreed upon between the Department and the Mining Association?

Haulage accidents

159. (*Chairman.*) Yes, if you please. Will you go now to the question of accidents and deaths from haulage?—Yes. I will hand in to the Commission tables* showing the total number of deaths from haulage accidents in mines under the Coal Mines Act during the last ten years, classified according to cause, and similar comparative information for each of the separate districts; also the death rates in the same form—per 1,000 persons employed, and the death rates in the same form per 1,000,000 tons of coal raised. The Commission will see from those tables that next to falls haulage accidents cause the greatest number of fatalities underground; also that there has been some increase in the number of haulage accidents during the last five years; but when the death rates are taken per 1,000 persons employed and per 1,000,000 tons of mineral raised, although the figures do not show an actual improvement, they show that the death rate has been more or less stationary. In 1896 the death rate per 1,000 persons employed was 0·28, and then the next nine years are 0·33, 0·28, 0·29, 0·29, 0·30, 0·31, 0·26, 0·32, 0·28. The worst districts as regards death rate are Cardiff and Swansea. The matter was discussed in the Annual General Report on Mines and Quarries for 1903 (p. 87), by Mr. Pickering, who edited the statistics in that year, and the chief causes assigned by him in that report for fatalities in connection with haulage were the breaking of couplings and chains, tubs becoming uncoupled, tubs being badly secured when intended to stand, roads being of insufficient size, drivers falling over obstructions, men riding on the tubs, and neglect to use lockers. The subject was again discussed in the report for the year 1904, by Mr. W. N. Atkinson, who edited the report last year, and he adds to those causes the following:—"The practice of drivers walking between the tub and the horse, or riding on the tail chain, tubs badly constructed or in bad repair, tramways badly laid and graded, unskilful application of mechanical haulage appliances." Mr. Pickering, in his report in 1903, made the following suggestions: That couplings and chains should be of sufficient strength and of such a design that the tubs could not unexpectedly become detached; that proper stop-blocks should be used on inclines; that roads should be of sufficient height and width, and be kept free from obstructions; and that drivers should be under stricter supervision. He adds:—"Lives are now rarely lost through insufficient refuge holes, but when persons are trying to escape from tubs they often fail to see the places of refuge in their excitement and hurry. The simple plan (adopted at many collieries) of whitewashing refuge holes makes them clearly visible." Some of those requirements are already in force in individual districts by means of special rules; but if they are to be generally enforced, it can only be done by legislation, or by proposing special rules throughout the country. I should like to call the attention of the Commission to the passages in the Report for 1904, p. 90, in regard to this subject of haulage accidents. Mr. W. N. Atkinson says with regard to the Staffordshire district: "In many of the pits in all parts of the district the methods and arrangements for haulage can only be described as barbarous. Roads unnecessarily irregular in direction, gradients and sectional area, tramways badly laid, tubs of bad construction and in bad repair, are the prevailing features in many of the mines. These conditions not only lead to accidents, but largely increase the cost of haulage. There is no direction in which the colliery managers of the district could introduce greater improvements than in the underground haulage arrangements." Similar remarks were made by Mr. Hall for the Liverpool district, and by Mr. Martin for the Southern district. Bearing upon this, I would refer the Commission to the number of prosecutions of miners by owners for breaches of the rules about riding on tubs. There are extremely frequent breaches of special rules in regard to that subject, and a large number of prosecutions are taken every year by the owners for it. The Home Office would suggest that haulage is one of the directions in which improvement is most urgently needed, and that it is one which should engage the special attention of the Commission. The only other matter in regard to underground accidents that I wish to mention is a minor one in connection with the question of boilers, and it also arises, of course, overground as well. The only provision made by the Act in regard to boilers is that which is contained in General Rule 32, that "Each steam boiler, whether separate or one of a range, shall have attached to it a proper safety valve, and also a proper steam gauge, to show respectively the pressure of steam and the height of water in each boiler." In the Factory Act of 1901 a provision was inserted requiring an examination of every boiler used in a factory or workshop by a competent person every fourteen months, the result of the report to be entered in a book to be kept at the factory. It would seem to be desirable that a similar rule should be introduced in the case of mines.

Mr. M. Dalevingne.
27 June 1906.

Shaft accidents.

160. Will you now deal with the question of shaft accidents?—Yes. I would refer the Commission, in regard to statistics of shaft accidents, to the table in Appendix 1 of Part 2 of the Annual General Report. The Commission will see from that table that a steady decrease has been effected in recent years in the number of those accidents. I have not prepared separate tables for the use of the Commission, because the information in Appendix 1 seemed to bring out the points that the Home Office wish to call attention to, but of course, any statistics that the Commission wish to have will be got out. The average death rate per 1,000 persons employed underground from shaft accidents during the five years 1886 to 1890 was 0·196; during the five years 1891 to 1895 it was 0·193; during the five years 1896 to 1900 it was 0·125; and during the last four years it has been 0·118, 0·154, 0·102, and 0·126.

161. (*Mr. Ratcliffe Ellis.*) Have you the number of persons travelling up and down the shafts during that period, or for any one of those years?—That would be the number of persons employed underground.

162. Yes?—This is a percentage per 1,000 persons employed underground. The chief questions which have come before the Home Office in recent years in

* Appendix VII.

Digitized by Google

Mr. M. Delevingne.
27 June 1906.

connection with shaft accidents are the question of over-winding, the use of safety catches for holding cages if a rope breaks, and the examination and re-capping of the winding ropes. With regard to over-winding, a point has been raised from time to time by the representatives of the miners that further precautions are required to ensure the competency of the engineman in charge of the winding engine, and, generally, the safety of winding. The present provision on the subject is contained in General Rule 24 of the Act, which says that a competent male person at least 22 years of age shall be appointed, and shall attend for that purpose during the whole time that any person is below ground in the mine. Legislative proposals have been made from time to time by the men's representatives in the House of Commons to provide that no person shall be employed on a winding engine unless he has been examined by the Home Office and received a certificate of competency. A Bill to this effect, under the title "Steam Engines (Persons in Charge) Bill," is now before the House of Commons. Early in the present year the matter was brought before the Secretary of State by a deputation from the Trades Union Congress, and Mr. Gladstone then expressed the opinion that the matter was one which might be considered by the present Commission. I hand in a table* of the fatal accidents caused by over-winding during the last ten years, the total number being sixteen.

163. (*Chairman.*) Does that compare very favourably with the previous ten years?—I have not the statistics for the previous ten years, but it is a very small number.

164. (*Mr. Enoch Edwards.*) Sixteen for 10 years?—Yes.

165. (*Mr. Haldane.*) Do you mean 16 fatal accidents altogether?—The number of fatal accidents from over-winding during the 10 years from 1896 to 1905.

166-7. Is that all the loss of life?—The number of deaths caused by these 16 accidents from overwinding was 40.

168-9. It is extremely small?—Of course, other accidents have been caused to men from breakage of ropes.

170. (*Mr. Ratcliffe Ellis.*) Are those shaft accidents that you have taken all the accidents which happened in the shaft?—No, this is only the accidents caused by over-winding.

171. (*Chairman.*) I think it appears from the report of the Accidents in Mines Commission that the number of these accidents even then had very greatly been reduced?—The inspectors in their annual reports continually refer to the steadiness and carefulness with which the men in charge of the winding machines do their duty.

172. (*Mr. Ratcliffe Ellis.*) Have you amongst your papers the report of the Select Committee that was appointed to consider the question as to persons in charge of steam engines and boilers?—I was going to refer the Commission to the fact that the question was inquired into by a Select Committee of the House of Commons in 1901, and to a report made by the Committee on that subject.

173. I believe they reported as to collieries that the special rules in force are sufficient?—The Committee's words were: "Your Committee are of opinion that the provisions of the Mines Regulation Act, 1887, the general rules incorporated with that Act, and the special rules which are fully detailed in the evidence of Mr. Ellis (Questions 2210 to 2220) are admirably adapted to secure the selection of competent persons for taking charge of engines and boilers and for fixing the responsibility in the case of mines."

174. (*Mr. Smillie.*) Is there any information as to whether the enginemen in those 16 cases were skilled engine-winders or not?—I have not referred to the separate reports on the subject, but the inspectors of the different districts where they happened would be able to give the information to the Commission.

175. (*Mr. Ratcliffe Ellis.*) In regard to all cases of fatal accidents, you will find that they give the reason in the report, and what they suggest was the cause of the accident, and I doubt whether you will find one case in which it was the incompetency of the engine-winder.

176. (*Mr. Smillie.*) Well, I happen to know of some cases myself. Would you call it an overwinding accident—I mean, would it be dealt with in those statistics—supposing the men were sent to the bottom of the shaft? Supposing the engine-keeper lost control, and although he did not overwind, men were sent to the bottom of the shaft and knocked off the cage and killed at the bottom?—Do you mean because the engineman did not stop the engine in time?

177. Yes?—I think the inspectors will say that they include those accidents as overwinding accidents. There are other precautions suggested in connection with this question of overwinding, which I would mention to the Commission. Three suggestions were made to the Home Office in 1905 by a deputation from the Trades Union Congress, which three suggestions were referred to the Mines Inspectors and reported on by them as follows. First, the Congress suggested "that catches should be required to be placed under the cage while the men are getting in or out, and that there should be a banksman in attendance at all times when men are ascending or descending." A considerable majority of the inspectors were in favour of making the use of such catches compulsory at the top of shafts when the men are ascending or descending; and as regards the question of the attendance of a banksman they said that "in every district there is a special rule requiring the banksman to be in attendance during ordinary working hours." The second suggestion was "that partition walls should always be required between two sets of winding engines." The inspectors thought it was desirable that winding engines should be as isolated as possible in order to prevent enginemen's attention being distracted by noises or in other ways. The third suggestion was "that adequate steam and foot brakes should be required to be attached to every winding engine when men are wound up or lowered in a shaft, and a speaking tube provided at all collieries for the purpose of communication between banksmen and enginemen." The inspectors did not consider that steam brakes were required on all winding engines, but thought that engines with cylinders of 24 in. diameter and upwards should be fitted with steam brakes. They did not think it necessary to make speaking tubes compulsory in all mines. Pending the settlement of various other outstanding questions special rules were not proposed, but the inspectors were instructed to do what they could to get these precautions adopted voluntarily by the owners. The Home Office contemplate that when new special rules are being proposed these precautions should be included if necessary. Before leaving the question of overwinding I might refer again to the Notice of Accidents Bill now before the House of Lords, because that Bill will enable the Home Office in future to obtain reports of all accidents caused by overwinding if any personal injury whatever is caused, instead of, as at present, if only serious personal injury is caused; and also if the Secretary of State thinks it desirable to make a special order, he may call for reports of all cases of overwinding, whether injury is caused or not. That will give very much better information as to accidents from overwinding than the Home Office possesses at present.

178. (*Chairman.*) Then do you wish to say anything about other precautions?—I have just dealt with that, my Lord; those are the suggestions. Shall I deal now with the question of safety catches, to which I have not referred yet—I mean safety catches for holding the cage in the shaft if the rope breaks?

(*Mr. Smillie.*) And to prevent overwinding also.

179. (*Chairman.*) You have already said something about safety catches, and I thought that was with regard to overwinding?—What I have said refers to the suggestion of the Trades Union Congress, that catches should be required to be placed at the top of the shaft while the men are getting in and out, in order to hold the cage. The question I am dealing with now is as to safety catches for holding the cage in the shaft in case of the rope breaking, which is a different matter.

180. (*Mr. Haldane.*) There are two questions: you have a safety catch for the purpose of dealing with an overwinding accident, and a safety catch to deal with the rope breaking when the cage is down in the shaft?—The precaution taken in regard to overwinding is the use of a detaching hook.

* Appendix VIII.

Digitized by Google

181. Yes, but that is combined with the operation of safety catching?—It comes into operation.

182. I think the two things go together?—Yes, but that is not the safety catch which comes into operation in the case of the rope breaking.

183. It only is as to the matter of overwinding?—Yes.

184. (*Chairman.*) If the rope breaks there is no means of stopping the cage at present?—At present in England safety catches for holding the cage are not in use. That is a question which the Home Office would bring before the Commission for their consideration. I am referring now to safety catches for holding the cage in the shaft when it is ascending or descending.

185. (*Mr. F. L. Davis.*) But the safety catches in the cage when the men go in and out surely are in use everywhere, are they not?—It is not the case everywhere.

186. The banksman releases the cage, and until he does that, if the engine were to start, the rope would simply curl down?—Shall I deal now with the question of safety catches for holding the cage in the event of the rope breaking?

187. (*Chairman.*) Yes?—This was one of the matters considered by the Royal Commission on Accidents in Mines in 1886. They, after full inquiry and examination into several varieties of safety catches, reported that they were unable to come to the conclusion that any one of them was a trustworthy safeguard against accident (see pages 108 and 109 of their report). The subject was referred to the inspectors at their annual meeting in 1887 in connection with the proposed legislation of that year. They resolved by a majority that they had not sufficient confidence in any of the inventions yet brought forward to recommend legislation upon overwinding or safety catches. For many years afterwards the question seems not to have been raised. In 1902 a serious accident occurred at the Tirpentwys Colliery in Monmouthshire, resulting in a loss of eight lives, through a rope breaking. In consequence of that accident, the Home Office asked the Foreign Office to obtain information from France, Germany, and Belgium as to their regulations on the subject of safety-catches, and an account of the catches in use first with wooden guides and secondly with wire-rope guides; also statistics of accidents in those countries. The Home Office also obtained from the owners, through the inspectors, a report for the whole of the United Kingdom of the breakages of winding ropes in 1902, whether any injury was caused or not. This information was summarised in the annual report for 1902, at pages 80 to 87. I would refer the Commission to that very full account in regard to the use of safety-catches at home and abroad. On page 86 of that volume a table will be found comparing France, Germany, and England in respect of accidents from ropes breaking. Generally, the result of the reports received was to show that the French and German regulations on this subject are more stringent than those in England. France does not make the use of safety-catches compulsory, but requires special precautions where they are not in use. In Germany the Boards of four out of the five mining districts into which the country is divided require safety-catches, and only grant exemptions in special cases and subject to special conditions. It appears that wooden guides are in general use in Germany, and that rope guides, such as are common in England, are being used in a few cases only, though a form of catch is in use in connection with wire rope guides which appears to give satisfactory results. On the whole, the English death rate from accidents from breakages of winding ropes is only a little, if at all, worse than in France and Germany. The subject was referred to the inspectors at their annual meeting in 1903, and they reported as follows:—"The inspectors are of opinion that appliances for arresting cages in cases of winding ropes breaking have not yet arrived at such a state of perfection as to warrant their compulsory use." Mr. Martin, the inspector for the Southern district, who has given special attention to this subject, and whom the Home Office would suggest the Commission should examine, has stated that, in his opinion, while safety-catches might probably be effective where the guide ropes are strong and the load light, it is uncertain what would happen if the load were heavy. A very full article appeared in December, 1905, by a German writer on the subject of guides and safety-catches, in the "Colliery Guardian." I think the Home Office would desire that the Commission, if possible, should go into this subject of safety-catches for the purpose of ascertaining whether any General Rule on the subject requiring their use should be laid down.

Mr. M. Delevingne 7 June 1906

188. These guide-ropes, I suppose, are ropes which go in each of the four corners of the cage?—That is so.

189. The cage going down the shaft would have four holes, as it were, at each corner, with the guide-ropes at each corner?—That is so.

190. Is it not possible to have some sort of catch which could be applied directly the wire-rope broke?

(*Sir Lindsay Wood.*) If it has to be done at all, it has to be done to prevent the guide-rope breaking.

(*Chairman.*) Could they have a second or spare rope, slacker than the other, so that if the one broke the other would come into play within a foot or six inches, or something of that sort?

(*Mr. Smillie.*) There is a method of that kind. It was proposed some time ago to have a central pulley, and to have a rope from the top of one cage over the top of the over.

(*Chairman.*) So that one rope would come into operation if the other broke?

(*Mr. Smillie.*) It was a rope over the top of both cages in addition to the rope at the engine-house, so that there could be neither an overwinding nor a breaking away if the rope broke.

(*Chairman.*) You say that the second rope has answered and has proved effectual in some cases—that is, the rope between the two cages?

(*Mr. Smillie.*) I am not sure that it has been put into practical use, but it has been put forward.

(*Chairman.*) It is one of the proposals?

(*Mr. Smillie.*) Yes. The only objection to it that I have heard from colliery proprietors is that it would require some little extra steam to work the engine.

(*Chairman.*) A certain amount of expense would be involved in its use?

(*Mr. Smillie.*) Yes.

(*Witness.*) There is one minor matter which I should mention in connection with this question of breakages of ropes; that is, the question of re-capping the winding-ropes periodically. The cap of the rope is the arrangement into which the end of the rope is fixed and which attaches the rope to the cage, and several of the districts have special rules now in force requiring the rope to be re-capped at fixed intervals; and the inspectors recommend that this should be required universally throughout the country.

191-2. (*Chairman.*) Has the breakage generally been at a place where it has been capped?—I am afraid I cannot say definitely, but experiments which have been recently carried out by Mr. Gerrard, the inspector for the Manchester District, with respect to caps, show that in some cases some of the "cappings" would break at about 50 per cent. of the reputed breaking strength of the winding-ropes to which they were attached.

193. And it is found by experience that the rope does more often break at the cap than anywhere else?—I cannot say whether that is so.

(*Mr. Haldane.*) I think that is so.

(*Mr. F. L. Davis.*) And it is more apt to rust there; there is some strain there.

194. (*Chairman.*) A man's special attention would be directed towards the cap, because it would be supposed to be the weak point, and, in point of fact, it might happen that the accident was usually caused by the rope breaking somewhere else, because people have their attention specially directed to the capping?—Mr. W. N. Atkinson, in the general report for the year 1904, points out the advantages of re-capping, and says:—"In some districts winding-ropes are required by special rule to be periodically re-capped, and this not only renews what is usually the weakest point in a sound rope, but it allows the internal condition of the end of the rope to be examined, and alters the bearing of the rope on the pulley at the lift." Several interesting experiments have been made by Mr. Gerrard, the inspector for the Manchester district, in connection with re-capping, and I would refer the Commission to his report for 1904, pages 18 to 21, and his report for 1905, pages 19 to 21. The only other point

Digitized by Google

Mr. M. Delevingne. 27 June 1906.

which I may mention in connection with winding is the question of providing the open ends of the cage with some kind of gate or bar. These are not compulsory at present, and there are occasional accidents through men falling out of the cage; eight lives were lost in 1904 from men falling out of the cage whilst riding in the shafts. The Home Office suggests for the consideration of the Commission whether they shall not be made compulsory. In Germany, I believe, the provision of gates is compulsory under the law. Mr. Gerrard and Mr. Walker also refer to this matter in their reports for 1905, and give illustrations of the kind of gate in use.

Surface accidents.

195. Is that all you have to say as to shaft accidents?—Yes. If the Commission desire, I can finish now with regard to the question of accidents by referring to the surface sidings, which is the last point under this head.

196. There are general questions as to accidents to be dealt with, are there not?—I could begin the general questions to-morrow; this is quite a short paragraph. I will hand in a table* showing for the last ten years for each inspection district the number of fatal accidents on railway sidings or tramways connected with mines under the Coal Mines Act. The average number of fatal accidents each year from this cause during those 10 years is 68·7. The question is discussed in the annual general report for 1903. The employment is obviously a hazardous one; the principal causes of danger which are preventable are stated in the report to be the want of room, the want of light, workmen having to pass between wagons, the want of coupling poles, and the want of brakes on both sides of the wagon. The question has been under consideration by the Home Office also in connection with factories, and a code of rules was drafted which would be applicable to both mines and factories. The rules for mines were held over pending an inquiry into the Factory Rules, under the Factory Act. That inquiry is now finished, and the report will be published probably in a few days. At that inquiry the mine-owners were represented (factory and mines sidings being very largely interconnected), and amendments have been introduced to meet their views. The idea of the Home Office would be that the code of rules as settled for the factories by this inquiry might be introduced also for mines.

197. (*Mr. Ratcliffe Ellis.*) The agreement arrived at, at the end of that inquiry, as I understood, was that sidings of collieries should be excluded altogether from the operation of those rules—that where they were common to both they should not be included?—From the factory code, yes, but not that the Home Office should not propose special rules for mines.

198. No, but do the Home Office intend to propose special rules under the existing Act?—That would be the procedure, subject, of course, to any change which the Commission may suggest should be introduced.

* Appendix IX.

SECOND DAY.

Thursday, 28th June 1906.

PRESENT:

Lord Monkswell (*Chairman*).
Sir Lindsay Wood, Bart.
Wm. Abraham, Esq., M.P. (Rhondda).
F. L. Davis, Esq.
Enoch Edwards, Esq., M.P.
Thomas Ratcliffe Ellis, Esq.
John Scott Haldane, Esq., F.R.S.
Robert Smillie, Esq.

S. W. Harris, Esq. (*Secretary*).

Mr. Malcolm Delevingne re-called and further examined.

Mr. M. Delevingne. 28 June 1906.

199. (*Chairman.*) Now we come to general questions as to accidents?—Shall I deal first with the question of special rules, my Lord?

Special Rules.

200. Yes.—The section of the Coal Mines Act referring to the establishment of special rules are 51 to 58 of the Act of 1887, and Section 1 of the Act of 1896. The object of special rules is to provide regulations beyond those contained in the general rules "for the conduct and guidance of the persons acting in the management of a mine or employed in or about a mine as, under the particular state and circumstances of such mine, may appear best calculated to prevent dangerous accidents, and to provide for the safety, convenience, and proper discipline of the persons employed in or about the mine." That is Section 51. The establishment of special rules is compulsory in every mine under the Coal Mines Act, but not so in mines under the Metalliferous Mines Act. The difficulties which have arisen in connection with the establishment of special rules are as follow:—The first arises out of the fact that by the terms of the Act special rules have to be established for each mine individually, and are to have regard to the particular state and circumstances of the mine. This makes the work of establishing special rules extremely arduous. In the event of the Secretary of State desiring to introduce new special rules on any particular subject for coal mines, any single owner has the right of objecting to the rules and taking the matter to arbitration, and unless it can be shown that the special rules proposed are required by the circumstances of the particular mine the proposal fails. I might give an instance of that which occurred recently, although it is an unimportant case. It occurred in connection with the special rules for the installation and use of electricity. After an inquiry by a Departmental Committee a long code of rules was agreed on with the representatives of the industry, and it was decided by the Secretary of State that the rules should be proposed to every mine in the country where either electricity was already in use or where it was likely that, by reason of the size and nature of the mine, electricity might be introduced at some future time, the object being that the precautions required in the special rules should apply automatically whenever electricity was introduced. The whole body of coalowners accepted these rules, except two. One firm objected to the rules because they said they had no electric plant at present, and they had nothing to do with the Mining Association of Great Britain—they were outside the general association of owners. The other firm objected to one rule about the electric re-lighting of safety lamps. Nothing would induce those two firms to budge, and as the matter could only be settled by an arbitration, at which it might have been difficult to prove that the rules were required by the circumstances of the mine, and which also might possibly have proved costly and certainly tedious, and the places were not of sufficient importance, the matter was allowed for the time to drop. Another difficulty connected with the present method of establishing special rules is the right of the owner to take the proposals to arbitration. This is a tedious procedure, and as a matter of fact the Home Office has not resorted to it in the case of special

Digitized by Google

rules under the Coal Mines Act since the big South Wales arbitration in 1893 to 1895. In October, 1893, the Secretary of State of that day proposed a new code of special rules to all the coal mines in South Wales. A very large number of objections were received, the matter was taken to arbitration, the proceedings in the arbitration dragged on almost indefinitely, and finally the Home Office, in order to get a settlement, had to compromise, with the result that a great deal was lost which the Home Office hoped to obtain, and the rules were only established in a very much modified form by July, 1895. It has resulted from our experience of that arbitration that since then the Home Office has attempted always to negotiate matters with the industry, so as to avoid the subsequent resort to arbitration. This was done, for example, in connection with the Timbering Rules to which I referred yesterday. The Home Office drafted model Timbering Rules; they were discussed with the industry, and, after considerable negotiations, were agreed upon, with some modifications, as a basis for discussion with the local associations. They then had to be taken up separately by each inspector in his own district, and negotiated with the local branch of the industry. The whole process lasted for three or four years, or rather more. The Home Office greatly desire some procedure which would be speedier and less costly in place of the present special-rule procedure under the Act. I should like to refer the Commission to the system which was established by the Factory Act of 1901 with regard to regulations for factories and workshops. Under the Factory Act of 1891 the same procedure for establishing special rules existed in regard to factories and workshops as exists now in the Coal Mines Act. The same difficulties were experienced—I mean the difficulties with regard to establishing special rules for factories individually and the difficulties by reason of having to submit the whole matter to arbitration—and that procedure was swept away by the Act of 1901, which substituted an entirely new procedure, by which the Secretary of State is empowered to make regulations for an industry as a whole. Under that procedure the Secretary of State is required to publish any regulations which he proposes to make, in draft in the first instance. Any person affected, whether the occupier of a factory, a workman employed in the factory, or any other person who can show that he is affected, is entitled to make objections; and unless the objections are trivial or unless they are withdrawn, the Secretary of State is required to appoint a competent person to hold an inquiry, at which all persons may be represented. A report is made to the Home Office by the person holding the inquiry, and on a consideration of that report, the Secretary of State decides whether to make the rules, and if so, in what form. The rules when made are laid before Parliament and are subject to the veto of either House. Several inquiries have been held under that procedure, and I think with satisfactory results. The Home Office would suggest for the consideration of the Commission whether some such procedure might be substituted in the Mines Acts for the present special-rule procedure. My Lord, that is the chief point on the question of the establishment of special rules, but the Home Office would also like to draw the attention of the Commission to the following matter in connection with the existing codes established under the Act. The principle on which many of the existing codes of special rules have been drawn up is partly, at any rate, that they should work out in detail the requirements in the general rules contained in the Act itself, by assigning to the different classes of officials and men their respective duties under those general rules and under the Act itself, of course supplementing them with additional precautions and requirements. The consequence has been that many of the codes are now extremely long. The code in South Wales runs, I believe, to something like 270 rules; to that you have to add the new electricity special rules, which number 56. So in the case of other codes, which I need not refer to now; many of them run to at least over 200 rules, and, with the addition of further special rules on various subjects which will probably be established in the near future, the Home Office is afraid that the codes will become altogether unwieldy. Of course, the longer a code of special rules is the less likely it is to be mastered by those who have to administer it and to observe it. It is a question which the Home Office would suggest for the consideration of the Commission whether this principle of working out in detail in the special rules the requirements of the general rules is one which can be maintained any longer as it has been in the past, and whether special rules should not be assimilated more in character to the general rules, and be limited to the laying down of additional precautions over and above those contained in the general rules. This has been done to some extent in the case of the Electricity Rules, which simply are in effect a code of general rules, and also in the rules established for Cornish mines—on the proposition of the Secretary of State—which were drafted in the form of general rules applicable to all the mines, with a provision at the end as to the responsibility of the various persons at the mine for enforcing or observing them. That is the system on which all special rules and regulations are drawn up under the Factory Act. No attempt is made in the factory rules or regulations to distinguish minutely between the responsibilities of the different classes of persons in the factory; the rules lay down general requirements and impose in more or less general terms the responsibility on the occupier, the persons employed, or the officials of the factory for observing them and enforcing them. As a matter of fact, the requirements of the general rules and the Act itself appear in the abstract of the Act which is required to be posted up at the mine itself, so that they are brought in that way to the knowledge of the persons employed at the mine, quite apart from the special rules. Another question which the Home Office would suggest for the consideration of the Commission arises out of the differences which exist between the special rules in force in the different districts. I can hand in a table to the Commission showing the number of codes in force for coal mines throughout the country. They amount in number to 20 or 30. These codes differ widely among themselves. Special rules of great value appear in some codes, which are quite absent from others. I referred yesterday to the case of miss-fire shots, and handed in a statement of special rules in force in the different districts on that subject. That illustrates my point. As the general rules under the Act apply universally to all the coal mines throughout the country there seems to be no reason why, at any rate, the bulk of the special rules which refer to conditions existing equally in all the mines should not also be uniform and universal. Of course, the differences in the character of the mines and the difference in the practices of the industry in different districts would no doubt require the addition of special local provisions in certain cases, but it is suggested that those might possibly be comparatively few. As I have said, in the case of the Electricity Rules the Home Office has succeeded in establishing throughout the country one uniform code, and hopes to be able to do so on the question, to which I referred yesterday, of rules for surface sidings and tramways. Certainly, from the point of view of the administration and enforcement of the Acts by the inspectors, a uniform code would greatly tend to efficiency.

201. (*Mr. Wm. Abraham.*) Is it not a fact that the Home Office in 1896 refused to accept the responsibility which they are asking for now?—I am not aware of it.

(*Mr. Wm. Abraham.*) Do you know whether that is so, Mr. Ellis?

(*Mr. Ratcliffe Ellis.*) I am inclined to agree with you that there was a hesitation about accepting the responsibility which they seem to be asking for now. But we had better hear rather more in detail what the suggestion of the Home Office is.

202. (*Sir Lindsay Wood.*) Is it the idea of the Home Office that the general rules should be the only rules, and that the special rules which would have to be given to all the different agents for their guidance would be only the rules of the managers of the mines, and would not have the authority of special rules?—No, that is not the suggestion I have put forward for the consideration of the Commission. The Home Office suggestion is not to do away with the special rules but that the special rules should rather serve the same purpose as they do under the Factory Act—the prescribing of additional precautions beyond those in the Act which may appear to be necessary from time to time. No doubt many of the existing special rules might very well be made general rules in the Act itself; but I only meant to suggest that the character of the special rules might be assimilated more to the

Digitized by Google

Mr M. Delwingne.

28 June 1906.

character of the general rules, and that as far as possible, they should be of general application.

203. (*Mr. F. L. Davis.*) To apply to the whole country?—Yes, to apply universally.

204. (*Chairman.*) Still, I suppose there must be mines in which you must have special rules to meet special dangers, as you do in special factories?—Yes, that would be so; but so far as the matters to be dealt with are the same—for instance, the question of miss-fire shots—my suggestion would be that in the different places throughout the country the rules should be the same.

205. (*Mr. Ratcliffe Ellis.*) In factories the rules can be general, because all the factories are carried on on the same lines; for instance, if you take your recent Railway Siding Rules, there would be no harm in applying those to any factory. It is rather different with regard to a mine?—On that inquiry, as Mr. Ratcliffe Ellis knows, great difficulties were experienced in framing a code which would fit all the different classes of factories which had to be covered.

206. (*Mr. Ratcliffe Ellis.*) That was only a question of space, really; it is a question as to old-established places and new places.

(*Mr. Wm. Abraham.*) There may be something to say in favour of the opinion that whatever can be done generally should be done.

207. (*Mr. Ratcliffe Ellis.*) With reference to the time occupied, you see those Factory Regulations must have been going on for a couple of years since you first started the suggestion as to the rules?—Not so long as that; moreover, that is perhaps the largest matter the Home Office has undertaken under the Act.

208. I think it took more than three years since they were first suggested?—No. The draft rules were issued from the Home Office in May of last year.

209. I am speaking from memory. You see the inquiry was at the end of last year?—Yes.

210. We must have been going on for over 12 months before that in discussing them, and the rules are not out yet?—No; the report has been delayed in this particular case because of the illness of the Commissioner. That is all I have to say on the subject of special rules.

Investigation of Mine Accidents.

211. (*Chairman.*) Now will you deal with the question of investigation into mines accidents?—That is a question which has been included in the terms of reference to the Commission. The Home Office has no definite suggestion to make on the point, but possibly the Commission would wish to hear exactly how the matter has arisen and what has been done with regard to it. The Coal Mines Act contains two sets of provisions with regard to the investigation of fatal accidents in coal mines: Section 48, with regard to coroners' inquests, and Section 45, with respect to formal investigations when directed by the Secretary of State. The only inquiries that have been held in recent years under Section 45 were inquiries in Scotland before the passing of the Fatal Accidents Inquiry (Scotland) Act, 1895. Since that Act no formal investigation has been held under Section 45, either in Scotland or in England. With regard to coroners' inquests, Section 48 makes several special provisions to secure a full investigation of the circumstances of an accident. A coroner is required to give notice to the inspector, the inspector is empowered to examine any witness at the inquest, and also any person appointed by the order in writing of the majority of the workmen employed in the mine may attend and examine any witness, either by person, solicitor, or agent. In all cases of importance the Home Office appoints counsel to represent the Secretary of State at the inquest, to watch the proceedings on his behalf, to assist the inspector in bringing out the circumstances, and to report to the Secretary of State whether blame attaches to anyone, and whether proceedings should be instituted. Special instructions are given to counsel on those points when he is appointed. I do not know whether the Commission would like me to read briefly what the instructions are.

212. Yes?—"The duty of counsel is to watch the proceedings on behalf of the Secretary of State in concert with the inspector, and to assist the inspector in eliciting the facts of the case and the cause of the accident. With this view he will take part in the examination and cross-examination of witnesses, if necessary, and argue any question which may arise in which he may think that the interests of justice require his interference. On the conclusion of the inquest he will send a report to the Secretary of State. This report should contain a short narrative of the case, and in addition to such other observations as Counsel may think fit to offer, should specify whether in his opinion a prosecution should be instituted against any person, and, if so, on what grounds." In two cases recently the Secretary of State has been approached by representatives of the miners with a view to his directing a formal investigation under Section 45 after the conclusion of the coroner's inquest. The first case was the case of the MacLaren Colliery explosion in 1902. The jury at the inquest returned a verdict that no one was to blame. The South Wales Miners' Federation asked the Secretary of State, after the inquest was concluded, to direct a formal inquiry under Section 45. In passing I may point out that Section 45 is limited in the same way as an inquest is, to determining the causes and the cir- an inquest is, to determining the causes and the circumstances of the particular accident. It appeared, however, from the reports received by the Secretary of State from the counsel whom he had nominated to represent him, and from the inspector, that the inquiry before the coroner was both complete and exhaustive, and the reports of the miners' representatives themselves admitted that every opportunity had been given them to sift the evidence, and the Secretary of State was advised by the inspector that even if another inquiry were held no fresh evidence could be produced. A deputation was received by the Secretary of State from the Federation, and they advanced as ground for a further inquiry that further expert evidence ought to be taken to determine whether, when a cap showed in the safety lamps in the air current, the danger was such that the workmen should be withdrawn. This, however, seemed to the Secretary of State to be a different kind of inquiry from that contemplated under Section 45, and it is, in fact, a question which has now been referred by the Secretary of State to the present Commission. Under those circumstances, the Secretary of State decided not to hold a formal inquiry. The second case was the National Colliery disaster of last year, when the question was again raised by the Miners' Federation. But in that case also the inquest, at which the Home Office was represented by counsel, brought out, in the opinion of the Secretary of State, so clearly not only the cause of the particular explosion, but generally the condition and state of discipline in the mine, that he decided that it was unnecessary to hold a formal inquiry. Those are the two cases on which the question has arisen, and the Home Office would only point out, in leaving the matter there before the Commission, that of course the Secretary of State, when deciding what steps to take after a coroner's inquest, is in no way bound by the verdict of a jury. He receives reports, as I have said, both from the inspector and from the counsel, and on their reports he decides whether proceedings should be taken in the Courts, or what further steps are necessary.

213. (*Mr. Wm. Abraham.*) Will you explain to us the difference between the constitution of these two Courts, the Coroner's Court and the other Court?—Certainly. At a Coroner's Court the inquiry is held by the coroner, assisted by a jury, and the facts are brought out by the coroner, and, in the case of these accidents, by the inspector, and by the representatives both of the owners and of the men, who, I think, are usually in attendance, and a verdict is found by the jury. In a formal investigation under Section 45 the Secretary of State would appoint a competent person to hold the inquiry, assisted, if necessary, by a person possessing legal or technical knowledge; he would inquire into all the circumstances, and would make a report to the Secretary of State as to the cause and circumstances of the accident.

214. So that the same evidence produced might have quite a different effect upon the mind of the two men conducting the second inquiry to the effect that it might have upon the jury at the inquiry conducted by the coroner?—That, of course, is quite possible.

215. Then, could you inform us what is the basis upon which the Home Office form their opinion as to the qualifications of the man they send down on their behalf to watch these coroners' inquests?—Of course, the nomination of counsel rests always with the Home Secretary, and is a matter entirely in his personal discretion. I should say—I think it is usually admitted, is it not—that the counsel appointed have been, if I may say so, thoroughly competent persons.

Digitized by Google

216. Was that the case with the gentleman sent down to inquire on behalf of the Home Office in the National Colliery inquest? Did he ever hold a brief for a colliery in his life?—I am afraid I cannot answer that.

(*Mr. Wm. Abraham.*) It all depends upon the abilities and the special knowledge required. I daresay that we shall have other opportunities of discussing this question, and that this gentleman will attend here again to give evidence.

(*Chairman.*) There is no doubt it is the duty of the Secretary of State to appoint a competent person. If he fails in his duty, I do not think this Commission could deal with such a matter.

(*Mr. Wm. Abraham.*) No, but my point is as to the experience of the past, and seeing that we have to consider this question and to inquire into it, and that it is within our power, if we think necessary, to recommend another Court, I think what has been done will have great weight with us in deciding what should be done in the future.

(*Chairman.*) Would you desire another sort of Court of Appeal from the Coroner's Court? You may think that in the Coroner's Court your case is not properly represented. If that is the case, and if you think that, you naturally would prefer that the matter should be carried further.

(*Mr. Wm. Abraham.*) Certainly—with experts on both sides, on behalf of the employers and on behalf of the workmen.

(*Mr. Ratcliffe Ellis.*) There is a difference between the two inquiries, which is this: Under Section 45 the Home Secretary may appoint a person to inquire into any accident; of course, the coroner's inquest only arises where there is a death.

(*The Witness.*) May I say that Section 45 was, I think, partly, at any rate, intended to cover cases where the body was never recovered, and where, consequently, the coroner could not hold an inquest.

(*Mr. Ratcliffe Ellis.*) Of course, the Secretary of State may order a formal investigation in regard to any explosion or accident and its causes, so that whether there happens to be anybody killed or anybody hurt or not, it would be competent for the Home Secretary to order an inquiry into an accident.

(*Mr. Wm. Abraham.*) Quite so; but the fact has been brought out now that although the Secretary of State had this power, and although in two of the most, if you will pardon me for saying so, flagrant cases, in our opinion, which necessitated the knowledge of experts in order to judge whether the rules had been carried out, in both those cases, although asked by the Miners' Federation, the Secretary of State refused a second inquiry. If that question comes before us now, and we have to discuss it, I think there will be very strong things to be said.

217. (*Mr. Smillie.*) Where the Home Office appoint a representative to attend an inquest, is that representative on behalf of the Government authorised to have a shorthand note taken of the evidence, and, if so, is that done in any case?—It is done, I think, in every case in which Counsel is appointed by the Secretary of State. A shorthand note is always taken of the evidence.

218. Can you say offhand whether a shorthand note of the evidence was taken in the MacLaren case and submitted to the Home Secretary?—I feel quite certain it was. I have not the papers with me, but I have no doubt it was done.

219. Would it be possible to put in that shorthand note here, or would it be any breach of confidence?—I do not see that it would be a breach of confidence. The case was reported in all the papers at the time, so that there would be nothing private about it.

(*Chairman.*) Then would you suggest, Mr. Abraham, that it should be made a matter of right on the part of the men if they consider that an accident ought to be further inquired into, that it should not rest with the Secretary of State's decision, but that some machinery should be set up by which, say, a certain number of persons interested should be enabled, as a matter of right, to call for a further inquiry, or for an inquiry if no previous inquiry has been held. Is that your suggestion?

(*Mr. Wm. Abraham.*) Whatever the machinery may be which might be suggested on this Commission, I think you may expect from us to ask this Commission to meet that case.

Mr. M. Delevingne.

28 June 1906.

(*Mr. Ratcliffe Ellis.*) An expert would have a right to appear before either inquiry, and the persons interested would have a right to employ any legal assistance that they may wish to have.

(*Mr. Wm. Abraham.*) Yes, but where the coroner has a right to allow one's question or to disallow it, that right may be of very little use to you.

(*Mr. Ratcliffe Ellis.*) That is the same in every Court.

(*Mr. Wm. Abraham.*) It would be of very little value indeed if those limitations are to be allowed. We are here as practical men, and I suggest that we should guard these powers given by the law, and that neither a coroner nor anybody else should be allowed to minimise them to such an extent that they become valueless.

(*Chairman.*) All these are matters which naturally you will have an opportunity of discussing afterwards.

(*Mr. Wm. Abraham.*) I was going to ask, if this is the proper stage at which to do so, whether the gentleman sent down by the Government has a right to put a question if the coroner does not agree with him. Even that authority we know to have been exercised. Then what is the good of sending down a man if it is said, "Your question must be in accordance with my opinion"?

(*Mr. Smillie.*) I do not think this is in regular form at present. Is there any necessity for this going on the notes?

(*Chairman.*) If Mr. Abraham would like it taken down.

(*Mr. Wm. Abraham.*) All I say is that we are here establishing a case, and if it is the right moment to do it (I am entirely in your hands) I cannot allow this opportunity to pass without saying that we should be strong on this point of a second inquiry.

(*Mr. Ratcliffe Ellis.*) You cannot interfere with the coroner's jurisdiction and the coroner's discretion, but Mr. Delevingne says that in cases where the Home Secretary, for any reason, thought that there had not been a sufficient examination before the coroner, they would be cases in which he would have power, under Section 45, to order an independent investigation by some person appointed by himself. In cases where the coroner improperly refuses to allow your questions to be put, that would seem to be one of the reasons influencing the Secretary of State in deciding whether he would direct a subsequent inquiry or not.

(*Mr. Wm. Abraham.*) I know this, that when we have finished with this case, even Mr. Ratcliffe Ellis will not refuse us a second inquiry.

(*Mr. Ratcliffe Ellis.*) It is not for me.

(*Mr. F. L. Davis.*) We cannot alter the jurisdiction of the Coroner's Court on this Commission, I am afraid.

(*Mr. Enoch Edwards.*) I think it may very well be said here that with regard to the last explosion, when we felt that sufficient had not been done in the inquiry, and when we pressed for a further inquiry, the answer from the Home Office was that they were not going to appoint one, but that they were going to appoint a Commission to inquire into all questions of this kind.

(*Chairman.*) It is a question, no doubt, which this Commission will have to consider and to report upon.

(*Mr. F. L. Davis.*) I think Mr. Abraham would not discuss this matter without hearing what the Home Office have to propose.

(*Chairman.*) It all comes to the suggestion which I ventured to put forward a little time ago, that possibly your view on behalf of the men may be that the discretion should not rest entirely with the Secretary of State, but that there should be some means of compelling a second inquiry or a first inquiry, if there has been no inquiry, independently of the Secretary of State. That will be for us to consider when we come to deal with our recommendations.

(*Mr. Smillie.*) I am sure your Lordship will forgive our anxiety, because we are really speaking on behalf of the men who are risking their lives every day. At both those inquiries we had persons, whom we believed to be competent persons, watching on behalf of the Federation, and they reported to the Federation that, in their opinion, those men were killed through care-

Digitized by Google

Mr. M. Delevingne.

28 June 1906.

lessness, and that accidents might have been prevented, and we put our view before the Home Secretary. I feel sure now that the inspector of mines, Mr. Martin, who has given his views against the further inquiry, was himself of that opinion. He expressed that view in Court, and if you refer to the shorthand notes you will see that.

(*Chairman.*) Perhaps it might be as well not to put it quite so strongly as to say that the men were killed through carelessness. I think we should have it put on the notes that there was a request for an inquiry at the time, because then I think we should know what was in evidence and what was put before the representatives of the Home Office on the question. I think there would be no objection to taking a note of the views of Mr. Abraham on that point.

(*Mr. Wm. Abraham.*) And Mr. Smillie will say they were killed through carelessness.

(*Chairman.*) All Mr. Smillie said was that someone else had told him that, in his opinion, that was so.

(*Mr. Smillie.*) No—I was present.

(*Chairman.*) And you considered it was so?

(*Mr. Smillie.*) Yes, it is my opinion.

(*Chairman.*) If it is your own opinion, and you choose to give that opinion, there is no reason why it should not be taken down on the notes.

(*Mr. Smillie.*) Those men were killed through carelessness, and there would have been no accident if the rules had been properly carried out.

(*Chairman.*) Very well; that is your opinion, and you were there.

(*Mr. Enoch Edwards.*) We realise that the Coroner's Court is a court to inquire into the cause of the death of people. Of course, I know that if you appoint inspectors they take a much wider range in their inquiries; but we know how Coroners' inquiries are conducted, and that they are people who know their business. But what we felt was that it has been so narrowed. This is not said out of any feeling against the colliery people. You have a jury in a locality—such juries as one has seen—who will give verdicts which do not help us to solve the problem and to prevent the possibility of such accidents happening again, and we have felt that if we could get independent inquiries held to ascertain the causes of the disasters we should be able to prevent many of them happening. In the instance I have referred to we felt very keenly that it was a great pity that all these lives should have to be lost before you could get these people to see that there was danger in the mine. A special inquiry following such a big accident would not restore those lives, but it would probably prevent such accidents happening again.

(*Mr. Ratcliffe Ellis.*) I think there is this to be said for the Coroner's Court, that they have specific work to do; that is to say, they have to inquire into the death and the cause of the death, and whether anybody is responsible; and, according to my experience, Coroners have refused to go into general questions, and I am not sure that they are not right. I think such matters should undoubtedly be inquired into under Section 45, because the Coroner cannot be expected to deal with such matters; he is there to inquire into a specific question, what was the cause of this man's death, and is anybody to blame for it.

(*Mr. Wm. Abraham.*) You agree with us that there is a necessity for another court?

220. (*Mr. Ratcliffe Ellis.*) Where it is necessary—where the Coroner's inquiry does not show all the circumstances which it is necessary for the Home Secretary to know, then, of course, the only way of ascertaining the circumstances is by another inquiry. But I understand that in the two cases mentioned by Mr. Delevingne, the Home Secretary was of opinion that all the facts which were material had been elucidated at the Coroner's inquiry, and therefore it was unnecessary to hold an inquiry under Section 45. (*To the Witness.*) That is so, is it not?—That was the Secretary of State's view.

(*Mr. Wm. Abraham.*) Then, knowing the facts as we do, and as Mr. Edwards, who was watching this case, can put them to you—knowing that the inspector had on two or three occasions strongly recommended the colliery proprietors in that case to use safety-lamps instead of naked lights –

(*Chairman.*) Then you simply go to this, that you think the Secretary of State was badly advised in the matter.

(*Mr. Wm. Abraham.*) Certainly. We want to know what power the Secretary of State has to make imperative his own orders—or to deal with what is advised by his own inspector, would be better.

(*Mr. Ratcliffe Ellis.*) I do not think it arises on the question of inquiry.

(*Mr. Wm. Abraham.*) It arises on the point that the Coroner's inquiry, in our opinion, is inefficient.

(*Chairman.*) You wish to express that opinion—that you consider the Coroner's inquiry is inefficient?

(*Mr. Wm. Abraham.*) Yes.

221. (*Chairman.*) I think you may now continue your general evidence?—That is all I have to say on that subject.

Rescue Work —Ambulance.

222. Then we come to the question of rescue work. You propose to take that before you deal with the question of certificates of competency, and so on?—Yes, my Lord. The Home Office has very little to say by way of suggestion on this subject. The question whether, and if so, what further provision should be made to facilitate the work of rescue in the event of an accident has come very much into prominence in connection with recent accidents both in England and France, and, as the Commission are aware, I believe, the Secretary of State is anxious to have their guidance on the point. The question has two branches; first, the ordinary ambulance provision for miners injured, and, secondly, the provision of special means to facilitate the work of exploration and rescue in the event of a serious disaster. Provision for ambulance is already made in the general rules. Rule No. 34 requires that "where persons are employed underground, ambulances or stretchers, with splints and bandages, shall be kept at the mine ready for immediate use in case of accident." In 1894 the Secretary of State issued instructions to mines inspectors desiring them to give their assistance and to take every opportunity of promoting ambulance classes among all persons employed in mines. The inspectors have done much work in pursuance of these instructions, and considerable progress, according to the reports which they make year by year to the Secretary of State, has been made in the different districts. I might refer the Commission to the annual general report for 1904 (page 119) and the annual general report for 1903 (page 117). But it is evident from these reports that very much still remains to be done in extending ambulance knowledge among persons working in the mines. I might perhaps notice here a suggestion which has been made that every candidate for a certificate of competency, or, at any rate, for a second-class certificate, should be required to hold an ambulance certificate. The Home Office has felt some difficulty about this proposal, because it might mean that a manager or under-manager would be called off to look after an injured man precisely at the moment when his attention was most needed elsewhere to secure the general safety of the mine, restore ventilation, or the like. The matter was referred to the inspectors in 1904. They thought it desirable that both the manager and the under-manager should hold certificates, that the possession of a certificate should entitle to extra marks at the examination, but that the absence of a certificate should not disqualify a candidate. Similar proposals were made by several of the Examination Boards. Apart from the general merits of the question, the Home Office was unable to agree to the suggestion that a certificate should entitle a candidate to extra marks. It might in some cases have the result of causing a man to pass the examination who would otherwise have failed as possessed of insufficient knowledge, and an ambulance certificate would not, the Home Office consider, make up for deficiencies in the qualifications essential for a manager or under-manager. With regard to the question of the organisation of more systematic provision for rescue work, this is comparatively a new subject. Until recently the only steps which have been taken in this direction were in the Yorkshire district, where Mr. Pickering, the then Inspector of Mines, took the matter up with the owners two or three years ago. A reference to this will be found in the report of Mr. Walker, the present acting inspector of the Yorkshire district, for 1904, where he says:—"Owing to the

Rescue Corps.

Digitized by Google

number and serious character of the underground fires which occurred during the time he was in this district, Mr. Pickering suggested in letters to the secretaries of the West and South Yorkshire Coalowner's Associations that they should seriously consider the advisability of establishing rescue stations for groups of collieries, such stations to be equipped with all the appliances necessary for fighting fires, and with pneumataphors to enable men to enter fumes and smoke, and the officials and picked men of each colliery to be trained in the use of the apparatus. . . . . The South Yorkshire Coalowners' Association appointed a committee to consider Mr. Pickering's letter, and they have issued a most interesting and valuable report, in which they suggest that the southern part of the district should be divided into eight groups, with a rescue station supplied with pneumataphors and all other necessary apparatus for each of them. . . . Up to the present time"—that is, when the inspector was writing in 1904—" much does not appear to have been done to carry out the suggestions of the committee." If the Commission wish, I would hand in a copy of that report of the committee of the South Yorkshire Association for the information of the Commission. As to the need of making more systematic provision for rescue work in the case of serious disasters, the Commission will hear evidence at first hand from the inspectors. As regards the question of the provision of pneumataphors, or oxygen-breathing apparatus, so far as the Home Office is concerned, there is little to say. The question has come up on several occasions. Dr. Haldane suggested their use in the report made by him in 1896 on the causes of death in colliery explosions. But in view of the liability of the apparatus then in existence to get out of order, as the Home Office was informed, and the consequent fatal results that might ensue, the Home Office felt difficulties in the way of taking any decided steps in the matter, and the inspectors to whom the question was referred in the year 1902 said they felt that the compulsory provision of such apparatus would at that time be premature. I might perhaps say that some use was made of pneumataphors at the Talk-of-the-Hill Colliery explosion in 1901 for making observations in afterdamp and firedamp in advance of the ventilation; that point is referred to in the report of Mr. W. N. Atkinson upon that explosion. During the last year, especially since the Courrières explosion, particulars of a number of apparatus have been received at the Home Office, which have been referred to the Commission. Within the last few weeks the Home Office has communicated with the Owners' Association on the subject generally, and put before them a suggestion that there should be in each district one or more trained corps at central points, provided with the necessary appliances. That is all I have to say on that point.

223. (*Mr. F. L. Davis.*) I presume, when you speak of the "necessary appliances," you mean when we have ascertained which are the best appliances?—Certainly.

(*Mr. Ratcliffe Ellis.*) Perhaps I should say that a circular letter has been sent to the different mining districts of the kingdom on the subject of these appliances, and the question is now being considered by them; but some of them say that it is not any use their proceeding until they get the views of the Royal Commission as to what is the best appliance.

(*Chairman.*) As I understand, with regard to that Dr. Haldane wishes to make investigations as soon as possible, and to report to the Commission?

(*Dr. Haldane.*) Yes. If the Commission would give me powers, I could manage to get the thing started very quickly.

Ankylostomiasis.

224. (*Chairman.*) Now you go on to deal with the question of ankylostomiasis?—It will not, of course, be necessary for me to enter into any details as regards the nature or mode of treatment of this disease, as Dr. Haldane is a member of the Commission; but it might be convenient for the Commission to have on the notes a short history of what action has been taken by the Home Office in regard to this question. A warning as to the danger of the introduction of ankylostomiasis into the mines of this country was first given by Sir Clement Foster in the Annual General Report for 1898. No case, however, was discovered in British mines until 1902, when Dr. Haldane, in the course of an inquiry which he was making for the Home Office into the health of Cornish miners, found that it was prevalent, and had been in existence for some years, in mines in Cornwall. He immediately reported the fact to the Home Office, and steps were at once taken to cope with the disease. The Dolcoath mine, one of the largest in Cornwall, where the disease was discovered, was thoroughly cleansed, and steps were taken to prevent further pollution. The medical men of the district were approached, and a report* made by Dr. Haldane to the Home Secretary was circulated to mineowners, medical men, and others. The inspectors at the same time throughout the country were instructed to watch carefully for any indications of the disease. About the same time reports on the great outbreak of the disease in Westphalia were obtained from the British Consul at Düsseldorf, and published in July, 1903, for the information of the industry.† The Home Office had also to consider what steps were necessary to prevent the disease spreading to the coalfields of the country. Dr. Haldane advised that the one thing needful to prevent an outbreak was to stop the pollution of the mine by human excrement, and to clean up the visibly polluted places. He deprecated any proposals for compulsory medical examination and treatment, exclusion from work, and promiscuous disinfection, as adopted in Germany. Pollution of the mines can only be stopped by (1) the management organising some regular system of sanitary conveniences underground, and (2) by the co-operation of the men themselves. The co-operation of the men, of course, was necessary; and it might be mentioned that at Dolcoath some trouble was being experienced at that time by the management in getting some of the men to conform to the regulations adopted in the matter by the management of the mine. I might say here, in order to complete the history of the Cornish outbreak, that at a later date a special rule on this point was proposed by the Secretary of State to Cornish mines, and was established, and is now in force. It requires that "the owner, agent or manager shall cause a sufficient number of suitable sanitary conveniences to be provided above and below ground in suitable and convenient places for the use of the persons employed, and to be constantly kept in a cleanly and sanitary condition, and no person shall relieve his bowels below ground elsewhere than in those conveniences. No person shall soil or render unfit for use in any way any convenience or sanitary utensil or appliance provided for the use of the persons employed. Pump cisterns, sumps and water accumulations in the mines shall not be directly or indirectly used for the purpose of Rule 5 (that is, the rule I am reading) as sanitary conveniences. It shall be the duty of the owner, agent or manager to see that all plant, material and other things necessary to enable the above rules to be carried out are provided and maintained in working order, and to appoint sufficient competent officials to enforce the requirements of the rules, and for this purpose to assign to each his respective duties. It shall be the duty of the officials so appointed to see that the rules are observed by all persons employed in the mine and to carry out the duties assigned to them. It shall be the duty of all persons employed in the mine to comply with the requirements of the rules and with such instructions as may be given to them by the officials with a view to such requirements being carried out." At the time I am speaking of, after Dr. Haldane's report, it was decided to communicate with the Mining Association and with the Miners' Federation, and to ask for their observations on the suggestion that sanitary conveniences should be provided in the mines. Also, in view of the serious reports which were received about the Westphalian outbreak (it was stated that 50,000 out of 250,000 persons employed in the Dortmund district were affected with the disease), Dr. Haldane was asked by the Secretary of State to proceed to Westphalia and to inquire into and report upon the state of things prevailing there. On his return and the publication of his report,‡ a conference was held at the Home Office in November, 1903, between the Department, the Mining Association, and the Miners' Federation. At that conference four conclusions were arrived at: (1) That the time had not yet arrived for the promulgation of special rules (the miners' represen-

Mr. M. Delevingne. 28 June 1906.

1903

* 1902—Cd. 1318. † 1903—Cd. 1671. ‡ 1903—1843.

Digitized by Google

Mr. M. Delevingne.

28 June 1906

tatives were opposed at that time to a proposal to make the use of sanitary conveniences compulsory by a special rule which would be enforceable by proceedings in the Courts); (2) that it was desirable that local conferences should be held in each district between owners and miners in order to agree upon the best measures to be taken; (3) that a recommendation should be made to the Home Secretary that in the event of his attention being called to any mines which were seriously suspected of being infected, arrangements should be made for an examination of them (I may say that so far his attention has not been called to any such case); (4) that the Secretary of State should also be asked to circulate information as to the disease, its diagnosis, treatment, and other particulars to medical practitioners in the mining districts, and also in a more popular form to the persons engaged in the mining industry. The Mining Association were accordingly asked officially to arrange for the matter to be taken up locally in the different districts. At the same time memoranda as to the detection of the ovum for the use of doctors in mining districts, and as to the disease generally, in a more popular form for distribution amongst the miners, were prepared and circulated by the Home Office. Copies of these have, I believe, been placed before the Commission. Lastly, the County Councils of counties including the mining districts were also approached. It was suggested to them by the Home Office, first, that they should take any opportunities which might present themselves, for example, in connection with their mining classes, of bringing the subject to the notice of those engaged in the industry, and of impressing upon them the dangers of uncleanliness and carelessness; secondly, that they should consider the question of providing facilities in the county laboratories or otherwise for the examination of infected matter. Several counties as a result took up the matter, and I might refer as an example to the letter which the Home Office received from the County Council of Lanarkshire. That letter says: "This County Council have made arrangements for the examination in the County Bacteriological Laboratory of fæces with a view to the early detection of the disease in any mine where its existence is suspected; and have also, in accordance with the request of the Secretary of State, instructed the lecturers on mining employed by them to inform the students of the nature of the disease and the precautions necessary, and also as to the danger which may result from uncleanliness and carelessness on the part of those employed in mines." They also sent their County Medical Officer of Health to Cornwall for the purpose of studying the disease on the spot. In the meantime further inquiries into the nature of the disease were being carried on by Dr. Haldane and Dr. Boycott; and in 1904 a report by Dr. Boycott was published by the Home Office on the diagnosis of ankylostoma infection.* This report described a simple method of examining the men employed in a mine by means of a blood film examination. Reports of the local conferences which were held between the owners and the miners were received at the Home Office in October, 1904. I am sorry to say I have left those reports at the Home Office, but I will hand them in to the Commission. They showed that, comparatively speaking, very little progress had been made in carrying the matter further. No doubt they were influenced by the fact that so far no undoubted case of ankylostomiasis has been discovered in a coal mine in this country.

225. (*Mr. Smillie.*) Is there any doubt about the case which is said to have occurred in Lanarkshire, and which was treated at the infirmary in Glasgow?—If I remember rightly it was not a case which was supposed to have arisen in the mine.

(*Dr. Haldane.*) It was a case of a soldier who had come back from India, was it not?

(*Mr. Smillie.*) Yes, but he was working in the mine.

(*Dr. Haldane.*) He was working in the mine, and they took him to the Glasgow Infirmary. Whether he left any ankylostomiasis behind him I do not know.

(*Mr. Smillie.*) Is there any doubt at all whether he was suffering from that?

(*Dr. Haldane.*) No, it is quite certain he was suffering from it.

226. (*Mr. Smillie.*) Then that is an undoubted case?—When I said "undoubted," I was not referring to a casually imported case like that. However, that is perhaps rather an inaccurate expression, and I will correct that. I should have said "no undoubted case of ankylostomiasis infection in a coal mine."

(*Mr. Smillie.*) He was working in the mine where the surroundings were not favourable to the propagation of the disease: the mine was a shallow one.

(*Dr. Haldane.*) It was a cool one. Still, it was very lucky that the disease was not spread.

Managers' Certificates of Competency.

227. (*Chairman.*) Now we come to the question of certificates of competency of the mine manager, and the views of the Home Office on the point?—That is one of the matters included in the terms of reference to the Commission, and perhaps it would be convenient if I described what the present system of examination is. The present system of examination for certificates of competency as manager and under-manager of a coal mine is laid down in Sections 23 and 25 of the Act of 1887 and the Coal Mines Amendment Act of 1903. There are two classes of certificates, first class for managers and second class for under-managers. The examinations are to be conducted by Boards to be appointed for such parts of the United Kingdom as the Secretary of State may think fit, each Board to consist of three mine owners, three miners, and three mining engineers, taken from the part of the country for which the Board is appointed, and one inspector of mines. The Boards act under general regulations made by the Home Office as to the places and time of examination of applicants for certificates, the number of and remuneration of examiners, and the fees to be paid by applicants. Under the present rules one examination is held each year by each Board, and the number of examiners is not to exceed three for each district. Formal proceedings of the Board are regulated by rules contained in Schedule 1 of the Act. The actual management of the examinations is entirely in the hands of the Board, subject only to two statutory conditions. The first condition is that no person is to be entitled to a certificate unless he has had practical experience in a mine for five years—and by a "mine" is meant a mine subject to the Coal Mines Act, 1887—or three years' practical experience and a diploma or degree in mining from an institution approved by the Secretary of State. The second statutory condition is that in every examination regard is to be had to such knowledge as is necessary for the practical working of such mines in that part of the kingdom for which the Board is appointed, and that the examination and qualifications of the applicants for second-class certificates are to be suitable for practical working miners. Power is given to the Board by Section 24 to make rules as to the conduct of examinations, and (subject to the conditions mentioned) as to the qualifications of applicants. The system established by the Secretary of State under Sections 23 and 24 is as follows:—The country is divided into 11 examination districts, co-terminous with the inspection districts, except in one case, where two inspection districts (Cardiff and Swansea) have been amalgamated into a single inspection district. The examinations in the several districts are distributed over the whole of the year. The number of candidates examined in each of the last five years and the number who succeeded in obtaining certificates is given in a table which I will hand in to the Commission. The cost of the Boards of Examination, during the current year is estimated at £1,825, against which must be set the amount of £1,700 which will be received in fees from the candidates. Each of the Examining Boards has made rules under Section 24 with respect to the qualifications of candidates and the subjects of examination. I will hand in a statement showing the particulars of the rules made by each Board. It will be seen from this statement that there is a considerable want of uniformity between the requirements of the different Boards. For example, as regards the qualifications of applicants, several Boards have made it a requirement that part of the five years' practical experience required by the Act must, in the case of candidates for first-class certificates, have been obtained in some official position in a mine. It will also be noticed that there are considerable variations in the subjects specified for examination. As regards the age of candidates, I may say that as a result of a Home Office circular, issued some time ago, the age is now fixed at 23 in all the districts. An important point is that a certificate granted in any district is good for the whole of the country, and also that the examination in any district is open to candi-

* 1904—Cd. 2063.

Digitized by Google

dates from all other districts. It seems clear that, this being so, it is most desirable that a uniform standard of qualification should be maintained by the different Boards for examinations. Allegations have been made that this is not always the case. Apart from the special regulations made in some districts as to the qualifications, to which I have just referred, it has been said that certificates are obtained more easily in some districts than in others, and that men who have failed in one district manage to pass in another. I might mention in this connection that perhaps the attention of the Commission might be directed to the method of marking prevailing in different Boards. I fancy that in some districts it is the case that certificates are given on an aggregate of marks merely for the whole of the subjects, without requiring that a candidate should qualify in each particular subject. Another important point in connection with certificates is the fact that a certificate may be given, and, I believe, is given in some districts, to candidates who have had no experience of the working of fiery mines. It came to the notice of the Home Office in 1891 that certificates were being granted in one district to candidates who were not possessed of a knowledge of the management of fiery mines. The difficulty arose in this way: Within the district there exists a coalfield where the mines are not fiery, and, if the knowledge of fiery mines were made compulsory, candidates from that area would be practically precluded from obtaining certificates. No power is given by the Act to the Secretary of State to grant two classes of certificates—one for fiery mines and one for non-fiery mines—and after considerable consideration the Secretary of State of that day decided that the difficulty could not be solved under present powers. The same question arose again in the same district in 1904, when the examiners reported that a successful candidate at the examination had been employed solely in those non-fiery collieries, and they wished to attach to his certificate an endorsement that he was not qualified in the use of safety lamps. The Home Office, however, was unable to approve that in view of the terms of the Act, which only provide for one class of certificates for managers. The inspector suggested that it might be a matter for consideration whether experience in a fiery mine or a mine worked with safety lamps ought not to be required in the case of every candidate in view of the fact that a certificate, wherever granted, is available throughout the country, and that the appointment of a manager with a certificate of that class even for a fiery mine is a full protection to the owner under Section 20 of the Act.

228. (*Dr. Haldane.*) I suppose the candidate had been asked questions in the examination about fiery mines, but he was simply not qualified in the sense that he had not had experience in the working of a fiery mine?—I think I am right in saying that he was not examined with regard to the practical management of fiery mines.

(*Dr. Haldane.*) Surely they would set questions upon that subject?

(*Sir Lindsay Wood.*) It would not be part of the examination.

229. (*Dr. Haldane.*) That is a most essential part of mining, I should imagine?—He would have to take the papers set on the subject of gases and safety lamps.

230. (*Chairman.*) It seems to me that under the system of examination he might obtain the required number of aggregate marks, and yet have no knowledge of the working of fiery mines?—In that district, I believe, they require a candidate to qualify in every paper. It is the Southern District, and the non-fiery collieries are the Radstock Collieries.

231. But might it not happen that in a district where there are non-fiery mines the examination is conducted on lines which would enable a man to obtain a certificate for the whole country, although he not only had no practical experience of fiery mines, but knew nothing whatever about them from reading?—I fancy that in every district examination papers include questions on the subject of gases, and so on.

232. But if the candidate obtains only the aggregate marks he might answer no question on the subject of fiery mines, and pass in other subjects, but not in that?—If I am right in my supposition that certain districts pass candidates on the aggregate number of marks, it might be quite possible. The Home Office consider it a very important matter that a candidate might be able to pass and get the certificate with a practical knowledge of the management of fiery mines.

233. Not only without practical knowledge, but even without theoretical knowledge?—Yes, I suppose that is possible. I might say that the difficulty, I believe does not occur only in the Southern District; it occurs also in other districts, but I do not think it has ever been quite so prominent there as in connection with the Radstock Collieries. The Home Office in 1891 at first advised the Board in that district to require a knowledge of fiery mines, but objections were of course raised by the persons employed in the Radstock Collieries who wished to obtain certificates, and they complained that it would have the effect of precluding them from employment there.

234. (*Chairman.*) There is one point you take about official experience being sometimes required. What do you mean by "official"?—I mean the experience of an official in the mine.

235. Will you define what you mean by "official in the mine"?—The persons entrusted by the management with a position of supervision—the persons in the position of overmen, and the subordinate officials.

236. Anybody put in a position of authority above the ordinary miners?—Yes. I have the exact terms of the requirement in my hand.

237. (*Mr. Enoch Edwards.*) You are speaking of first-class certificates?—Yes. This is the requirement for a first-class certificate in the Durham District:—"Actual practical experience for at least five years as under-viewer, assistant-viewer, fore-overman, back-overman, master wasteman, or master shifter: but two years' actual practical experience in any of those positions will be deemed to be sufficient in the case of a candidate who during two such years has held a second-class certificate."

238. In some places there is no requirement of any qualification at all of any experience underground?—Yes.

(*Mr. Ratcliffe Ellis.*) Under the Act there must be five years' practical experience.

(*Mr. F. L. Davis.*) Yes, but not necessarily in a fiery mine.

239. (*Chairman.*) Not necessarily in a fiery mine, and not necessarily in an official position?—That is so.

240. Anybody who works underground for five years is considered to be qualified so far as regards experience?—Yes.

241. (*Mr. Ratcliffe Ellis.*) And I think in some cases less than that?—Mr. Ratcliffe Ellis knows a case in which the Home Office had to take action recently, which was really a case of fraud. I ought to add that by the Act of 1903 a diploma or a degree in mining obtained at a university or institution which has been approved by the Secretary of State can be substituted for two out of the five years' practical experience required. There is one consideration in connection with the question of the maintenance of a uniform standard in the different districts which I should mention. In 1901 the Home Office received a letter from the Board of Education, dated 2nd April, in which they said:—"This Board have, on various occasions, received representations from the Technical Instruction Committees of the West Riding of Yorkshire and Glamorganshire County Councils, in regard to the difficulty experienced in carrying on instruction in the principles of mining on the lines of the syllabus of the subject published in the Board's directory, in consequence of that syllabus not meeting the special requirements of miners who are working for the Home Office colliery certificates, and who form a large proportion of the examinees under that syllabus. The Board have complied, as far as possible, with the requests made by these educational authorities to recognise specially prepared courses for instruction on which this Board pay annual attendance grants. But it is pointed out that, although the difficulty indicated has to some extent been diminished by this exceptional treatment, no arrangement satisfactory to the educational authorities and the Board can be arrived at whilst there are twelve separate examining Boards constituted under the Coal Mines Regulation Act, each of whom may take a different standard for that part of the examination which is also covered by the Board's examination."

Digitized by Google

Mr. M. Delevingne.
28 June 1906.

I put in that letter for the information of the Commission. But the Secretary of State, pending a revision of the whole system of these examination Boards, felt unable to take any definite action with regard to the point raised by the Board of Education. The Home Office generally would suggest for the consideration of the Commission how far, at the present time, substantial differences exist between the standards of qualification set by the different Boards, and what steps, if any, may be taken to secure the maintenance of a uniform standard. As regards the steps to secure a uniformity of standard, I may say that a suggestion has been put before the Secretary of State by the Institution of Mining Engineers, the Council of which, in September, 1904, drew up a report and submitted it to the Home Office (I will hand in a copy) recommending, first, that uniformity should be observed in the rules as to the qualifications of candidates, and, secondly, that the printed questions for the written portions of the examinations should be identical throughout the kingdom; that the examinations should be held throughout the kingdom on the same date at intervals of not more than six months; that the examination papers should be prepared by a Central Committee, consisting of one examiner from each of the Boards of Examinations. On the other hand, a memorial has been received from the Mining Institute of Scotland taking up an entirely opposite position, and recommending that the present system of examination should be adhered to. The chief difficulty, so far as the Home Office has been able to judge, lies in the different conditions and the different practices which exist in the districts; and it has been urged that one set of papers would not be sufficient to adequately examine men, say, in respect of the thin seams of Somerset, the thick seams of Staffordshire and Fife, and so on. At present, as I have already stated, the statutory requirement laid down in the Act is that in the examination regard is to be had to the knowledge necessary for the practical working of a mine in the particular part of the United Kingdom for which the examination is held. So that one uniform examination would probably require legislation.

242. (*Sir Lindsay Wood.*) Where do you say the first recommendation came from?—The Institution of Mining Engineers.

243. (*Mr. Smillie.*) Is there any recommendation from the Mines Examiners Board in Scotland?—The Home Office consulted the inspectors (who are all members of the Examination Boards) some time ago on the subject, and generally I think there was a feeling in favour of uniformity so far as it could be obtained; but no definite recommendations or conclusions were arrived at. The Home Office has never carried the matter into great detail, because it recognised that some inquiry must take place before a uniform system could be adopted.

244. (*Chairman.*) The Home Office have no opinion to offer as to whether it is desirable that certificates should still hold good for the whole country, or whether there might not be, for instance, certificates for non-fiery mines and for fiery mines, and for one kind of mine and for another kind of mine?—The suggestion has been made in the Home Office that there might be a distinction between fiery and non-fiery mines, but it has not come up for consideration now for some years, and I should not like to say that the Home Office had an opinion one way or the other upon the point. Another question which has come up in connection with the present system of examinations is as to the admission of experience gained in foreign mines. It is held by the Home Office that under the Act the five years' practical experience must be five years' practical experience in a coal mine in the United Kingdom. Some difference of practice, I believe, has prevailed in the different Examination Boards on the subject, and the Secretary of State has not directly interfered with the Boards of Examinations in the exercise of their discretion on that point. But it seems very desirable that it should be cleared up, and the Secretary of State suggests for the consideration of the Commission that there may be some advantages to be gained by allowing foreign experience to count, subject to proper conditions. It might have the effect of encouraging mining students to go abroad for the purpose of studying mining methods in other countries, such as France and Germany. I refer here to a report which was made by Mr. Cunynghame and Sir Clement Foster when the Act of 1903 was passed. The Secretary of State referred to Mr. Cunynghame and Sir Clement Foster the question of the conditions under which institutions were to be approved for the purposes of that Act, and in their report they say:—"A further question that arises is whether the diplomas and degrees of colonial or foreign teaching institutions should be recognised. We see no reason why any that are submitted should not be considered for approval, provided it is certain that they involve proper courses of study. These are great advantages to be gained by experience in some colonial and foreign mines. The general arrangements, for example, of some of the coal mines in Westphalia are so good, and the opportunities of study are so great, that it would be very wise of any young man to study there and to acquire at the same time a knowledge of mining and of the German language. Turning to our own possession, the student will find examples of up-to-date mining practice in South Africa and Australia in the immediate vicinity of mining schools." Lastly, in 1903 a despatch was received through the Colonial Office from the Government of New South Wales as to the admission of certificates of competency granted in that colony into this country. I will hand in that dispatch and the enclosures which accompanied it.

Managers of Metalliferous Mines.

245. What statement have you to make with regard to the appointment of certificated managers in metalliferous mines so far as our reference is concerned?—At present no provision requiring the appointment of a manager exists in the case of metalliferous mines such as appears in Section 20 of the Coal Mines Act. As regards metalliferous mines, there has been no legislation with regard to safety since the year 1872. The metalliferous industry is, of course, in a very different condition from that of the coal industry. I might give the Commission a few figures on that point. In 1905 there were only 688 mines at work under the Metalliferous Mines Act, as against 3,252 under the Coal Mines Act, and of those 688 mines only 124 employed more than 30 persons below ground. Thirty persons is the limit fixed in the Coal Mines Act for the requirement of a certificated manager, and mines employing 30 persons or less do not require to have a certificated manager. Only 29,000 odd persons were employed in metalliferous mines, as against 858,000 odd in mines under the Coal Mines Act; and only 46 deaths from accidents occurred in metalliferous mines, as against 1,159 in coal mines.

246. (*Mr. Enoch Edwards.*) But the proportion is rather big, is it not?—I will come to that. Taking the death rates, there is very little difference between the degree of risk in coal mines and the degree of risk in metalliferous mines. In the ten years from 1883 to 1892 the death rate per 1,000 persons employed in coal mines was 1·81; in metalliferous mines for the same period it was 1·44. For the next ten years: for coal mines it was 1·39; for metalliferous mines 1·31. During the last three years: for coal mines it has been 1·27, 1·24, 1·35; and for metalliferous mines, 0·84, 1·19, 1·58. So that, on the whole, the metalliferous mines are a little safer, but nothing appreciable.

247. (*Chairman.*) Then you have no opinion to offer as to whether certificates should be required in the case of managers of metalliferous mines?—The Home Office puts these considerations before the Commission as bearing on the question whether a certificate should be required in metalliferous mines. I think the Home Office would be in favour of the requirement, at any rate in certain classes of mines.

248. (*Dr. Haldane.*) That is the death rate from accidents; but if you take the death rate from disease, that would swamp the whole of the deaths from accidents and everything else?—Yes, I was going to mention that. The arguments in favour of requiring the appointment of certificated managers are, first, that in the past difficulties have arisen in enforcing the Metalliferous Mines Act in consequence of the inspector finding no person really in charge of the mine to hold responsible; secondly, that if you take into account the deaths from disease in metalliferous mines, especially from what is known as miners' phthisis in Cornwall, which was inquired into by Dr. Haldane recently, the death rate becomes very much larger. In addition to miners' phthisis, there is the question in the Cornish mines of ankylostomiasis, and special rules have now been established in the Cornish mines both as regards miners' phthisis and ankylostomiasis, and it is, of course, of the greatest importance for the enforcement

Digitized by Google

of those rules that there should be somebody in charge of the mine to see that they are observed, and somebody whom the Home Office can look to as responsible.

249. (*Mr. F. L. Davis.*) I think you said that you are not able to get statistics with regard to disease, because you have had no responsible people to give you the information?—With regard to statistics, I can refer the Commission to the figures published by Dr. Haldane in his recent report on the Cornish mines.

(*Mr. F. L. Davis.*) Can you obtain figures, including all the people employed?

(*Dr. Haldane.*) No, but we know with regard to some of these mines practically every man who is infected. You will see the figures in Dr. Boycott's report.

(*Witness.*) That is as to ankylostomiasis; but for miners' phthisis you can obtain the figures.

(*Dr. Haldane.*) Yes, with regard to that there are figures in the more recent report.

(*Witness.*) Perhaps I might say that the Home Office is engaged now in making arrangements with the Registrar-General for watching the effect of these special rules, and getting returns of all cases of deaths of miners in the Cornish mining districts from phthisis. The late Sir Clement Foster believed that the proposal of the appointment of certificated managers in metalliferous mines under some system similar to that in the Coal Mines Act would be very popular among the miners themselves. He said that the better men among the miners would be able to get Government certificates, which would enable them to obtain good appointments in mines in other countries. It has been stated that the English metalliferous miner who seeks employment abroad is handicapped, as compared with men from other countries, by having no Government certificate or diploma which he can produce as evidence of his qualifications. In support of a proposal to require certificates, I would hand in to the Commission a letter which we have received from the Institution of Mining and Metallurgy, strongly recommending the establishment of a system of certification for managers in metallurgical mines. The Home Office would, in this connection, call the attention of the Commission to the fact that the industry is not homogeneous in the same way that the coal industry is. There are different classes of mines. The three principal centres of metalliferous mining are the Cornwall tin mines, where there are 62 mines now at work, the North Wales slate mines, where there are 43 mines at work, and the Cumberland and North Lancashire iron-ore mines, where there are 51 mines at work. It might be possible that some classification of mines would be required, and that some differentiation of certificates should be made with regard to them; but that I put forward only as a suggestion for the consideration of the Commission, and no doubt the Commission would wish to hear the owners from those districts on the subject. I might say that when the Merionethshire slate industry was inquired into some years ago, the quarry-owners themselves were strongly in favour of a system of certification.

250. (*Mr. Smillie.*) With regard to the metalliferous mines in Scotland, iron-stone mines in Ayrshire, are they not under the Coal Mines Act?—Well, it depends.

(*Mr. F. L. Davis.*) Is it open work or not?

251. (*Mr. Smillie.*) No, wholly ironstone on the ground?—It depends upon whether it is stratified or not.

252. It is stratified ironstone?—Then it is under the Coal Mines Act.

253. And with regard to little lead mines in the lead hills, they are metalliferous?—They would be under the Metalliferous Mines Act; they are very small. That is all I have to say on that point, I think.

254. (*Chairman.*) Then with regard to miscellaneous points?—There are several small miscellaneous points to mention. I do not know whether the Commission wish to be troubled with those now; they are matters of minor detail.

255. Do you wish to make any statement with regard to the special powers which you think are required?—I do not know whether that question comes within the terms of reference of the Commission; but on the question of returns the Home Office would suggest that the powers of calling for returns from mine owners on particular subjects should be enlarged so as to give the Secretary of State some discretion. As a matter of fact the coalowners are extremely good in giving us information outside the requirements of the Act, but there are always some recalcitrant owners who refuse to give it, and it would be desirable to have further powers.

256. I think that is certainly a matter which would come before the Commission as a matter possibly affecting the safety of the miners?—I think it does bear very closely on that question, my Lord.

257. Then you do not desire to make any further statement?—I think I should like to reserve any further points.

258. (*Chairman.*) Do you wish to come here again to give evidence?—Not at the present time, unless the Commission wish me to do so.

259. I was not sure whether you intended to go into particulars about these additional powers?—I just mentioned the subject. Of course one could give the Commission information.

(*Mr. Enoch Edwards.*) It will probably do if you will deal with that later.

260. (*Chairman.*) I should think that could be dealt with later?—It is merely a question of extending our powers so as to cover any particular cases which may occur from time to time.

261. It was understood that when the notes of your evidence came before the Commission, the Commissioners should, if they pleased, have an opportunity of asking you further questions?—I believe that was the understanding. Perhaps Mr. Ratcliffe Ellis would like me to mention, for the information of the Commission, certain subjects on which we have asked the coalowners recently to give us information, which information they have voluntarily supplied. One of those subjects is the use of coal-cutting machinery in mines; for several years we have asked for information as to the number of coal-cutting machines used, the class of coal-cutting machines used, and the output from coal-cutting machines. Last year we asked for information as to the amounts of the different kinds of explosives used in the mines throughout the country. We also asked for particulars as to the manufacture of coke and briquettes at the coal mines of the country; and some of the inspectors also asked for additional information on the subject of the safety lamps in use, and matters of that kind.

Digitized by Google

THIRD DAY.

Wednesday, 11*th July* 1906.

Lord Monkswell (*Chairman*).
Wm. Abraham, Esq., M.P. (Rhondda).
F. L. Davis, Esq.
Enoch Edwards, Esq., M.P.
Thomas Ratcliffe Ellis, Esq.
John Scott Haldane, Esq., F.R.S.
Robert Smillie, Esq.

S. W. Harris, Esq. (*Secretary*).

Mr. Malcolm Delevingne recalled and further examined.

Mr. M. Delevingne.
11 July 1906.
Examination on evidence given previously.

262. (*Chairman.*) I should like to ask you a question on your evidence given on the second day (Q. 212) about the interpretation which the Home Office put upon Section 45 of the Mines Regulation Act, 1877. There seems to be some feeling on the matter with the men. You say that "Section 45 is limited in the same way as an inquest is, to determining the causes and the circumstances of the accident." When you say "the causes and circumstances of the accident," do you mean all the causes and circumstances, whether approximate causes and circumstances, or whether they are the ultimate causes and circumstances? For instance, I put it in this way. Supposing in an accident it clearly appeared at the coroner's inquest that the accident was caused by the breaking of a safety lamp, and that that was the verdict of the jury. Would you consider there was a duty to go further into the facts, supposing that was the only verdict of the jury, that it was caused by a broken lamp? Would you consider, if that was the verdict, that the Home Office should investigate the matter, with the view of finding out how that safety lamp was broken, whether it was broken through carelessness of the workman, for instance, or whether it was broken through the lamp having been faulty, and its being faulty was due to insufficient testing?—I think we should certainly expect the inquiry before the coroner to bring out not only the fact that the explosion was due to a broken lamp, but also, so far as it was possible, the manner in which the lamp had become broken.

263. So that the blame might be placed upon the right person?—Exactly.

264. So that you would not be satisfied if the verdict left it in doubt as to whether the blame for the broken lamp was due to carelessness of the workman or to insufficient testing?—Of course it might be quite impossible to arrive at the cause of the breakage, but we should expect the inspector and the Home Office Counsel, if appointed, to do their best to bring out the circumstances in which the lamp was broken.

265. Let us take the matter a little further. Supposing, at the inquest all the circumstances were brought out with regard to the breaking of the lamp and all the circumstances that enabled the Home Office to apportion the blame between the managers or the owners of the mine for the accident. Supposing then the miners' contention was that the evidence at the inquest went to show that certain regulations ought to be put forward by the Home Office, and supposing that then the Home Office answered to that, "We do not consider that the evidence in connection with this inquest is sufficient for us to definitely say whether certain regulations ought or ought not to be put forward," and then the men say "Very well, if that is your view, let us have a further investigation," not necessarily confined to the circumstances of the accident, but, say, further scientific investigation into the whole matter, with the view to deciding whether certain regulations ought or ought not to be adopted. You would say, I imagine from your answers, that that is not within the purview of Section 45?—I think we should. Your Lordship's point is illustrated by the existence of this Commission. Three of the most important points that the Home Office desire to bring before the Commission—the question of the watering of roadways, the question of the standard of ventilation, and the question of shot-firing during shifts—are all questions which have arisen more or less acutely out of recent explosions. They all appear to the Secretary of State to demand more inquiry, and some of them scientific inquiry, than was possible either at the inquest or formal investigation or at the inspectors' meetings; and it was partly on those grounds, I believe, that the Secretary of State recommended the appointment of this very Commission.

266. I suppose it may very well happen that the circumstances of an accident might raise such a very strong *prima facie* case for immediate action that the Home Office would consider it desirable on the spot, without waiting for the report of a Royal Commission, or appointing a Royal Commission to make certain further inquiries on their own account. You would say, if they did that, it would not be under Section 45, but it would be as a totally distinct matter?—Exactly. That is what happened both as regards the question of watering and the question of ventilation. The Home Office has gone into the matter, so far as it possibly can, by instructing the inspectors to make inquiries in their several districts and otherwise; but, as I said the other day, the questions reached a stage at which the Home Office felt it could not carry them further without some special inquiry. I might say in every case after serious disaster revealing sources of danger not sufficiently guarded against by the existing rules, the Home Office would at once consider it to be its duty to take the matter into consideration from the point of view you have put forward.

267. Sometimes the result would be immediate action on the part of the Home Office, and sometimes the result would be a Royal Commission, or some other further means of investigation?—Exactly.

268. (*Mr. Ratcliffe Ellis.*) With reference to inspection, is it the view of the Home Office that the powers given to inspectors by Section 41 of the Act of 1847 are sufficient or insufficient?—Do you mean in regard to the examination of mines and the detection of breaches of the Acts?

269. I mean for the purposes for which inspectors are appointed under the Act?—That, of course, is rather a wide question. So far as the powers for the actual inspection of mines go, I think we are satisfied with the present powers; but that does not affect the question of the powers of the inspectors, and the Home Office, generally to introduce further precautions.

270. Can you instance any precaution they could not take under these powers?—That was the point I referred to in connection with the mode of establishment of the special rules. We were not satisfied with our present powers.

271. That is rather on the question of special rules?—That is so.

272. Subject to the question of special rules, is there anything which occurs to you in which these powers are deficient for the purpose of seeing that the Act is carried out?—I do not recall any point at the moment.

273. The number of inspectors is entirely within the discretion of the Home Office under Section 39 of the Act?—Subject, of course, to the consent of the Treasury.

274 You can increase the number if you think it

Digitized by Google

right to do so. It is a question of cost, and you have the power to do so?—Certainly.

275. I suppose it is not the view of the Home Office that inspectors under the Act should be in any way responsible for the management of the mine?—Certainly not.

276. You leave the management in the hands of the responsible managers?—Yes.

277. The duty of the inspector is to see that the Act is carried out?—Yes.

278. Has it not been the policy in all mining legislation that there should be some general rules provided, and that the method of carrying out those rules should be left to the management?—I do not understand what you mean by "the method of carrying out the rules."

279. The general rules provide that certain results should be attained. First, an adequate amount of ventilation should be secured, but leave it to the management to see how that should be effected?—On that particular rule, it has, but, as I say in my evidence, the Home Office is not altogether satisfied with the rule.

280. Whether it is right or wrong, or good or bad, that hitherto has been the policy of mining legislation?—We think most of the general rules are quite definite in their requirements.

281. But the way in which they are to be carried out is not described in detail?—I do not think I could say that.

282. That is left to the management?—We think most of the general rules are quite definite as to their requirements. They say a certain thing has to be done or has not to be done.

283. My point is this, that although they are definite as to their requirements, the way of doing it is left to the management?—So far as there is more than one way of carrying out anyone of the general rules it is left to the management.

284. Do you think that system has broken down?—No—that is not the contention of the Home Office, certainly.

285. That has been satisfactory?—I do not see how mining legislation could prescribe in every detail the way in which a requirement is to be carried out.

286. May I take it the view of the Home Office is generally that that method has been satisfactory?—I do not think the Home Office has any fault to find generally with the general rules.

287. In what respect do you suggest that the inspection would be improved by the appointment of a Chief Inspector?—I do not think I can add more than I said in my evidence-in-chief, that it will tend to secure uniformity of administration of the different districts, that it will tend to maintain a high uniform standard of administration in the different districts, and that by providing the Secretary of State with an expert adviser closely in touch with himself and also closely in touch with all the districts, it will tend very greatly to the efficiency of the administration.

288. Would you get the same class of man in the districts as an inspector, who would supervise in the way you suggest he should, as you do at the present time?—I do not see why we should not.

289. In answer to Q. 12 you said: "Yes, that would be our suggestion: that he should hold a position similar to the Chief Inspector of Factories and other Departments. He would supervise the work of all the inspectors; he would himself go into the different districts and supervise the administration of the Acts in the different districts, and advise the Secretary of State on all important mining questions. He would investigate questions in the different districts and discuss them with the different inspectors, and present to the Secretary of State definite conclusions on the matters in question." With the Chief Inspector exercising such powers as that, would the effect not be to bring down every inspector of the district to the position of a sub-inspector or assistant inspector?—I do not think so.

290. You think you could have your Chief Inspector exercising that power and still the district inspector would be a man of the same capabilities as he is now?—I think so. The main bulk of the administration of the Acts in a district must rest with the local inspector in the district.

291. I suppose you think it important that the status of the district inspector should be maintained?—Certainly.

292. Now with reference to the special rules: your objection to the existing special rules I understand to be want of uniformity?—That is one objection.

293. And especially the difficulty in establishing them?—That is another.

294. You suggest proceedings to establish special rules similar to the Factory Act?—I suggest that generally for the consideration of the Commission as a recent precedent.

295. In the Factory Act I suppose there are no general rules?—There are a great number of requirements scattered throughout the Factory Act.

296. That is so, but there are no general rules at all like those in the Mines Act—I mean on the same lines?—There is no body of requirements collected together in a single section, but the Factory Act contains a great many requirements exactly of the same character as the general rules.

297. Section 79 under the Act is the section which provides for the making of the regulations?—Yes.

298. That is the procedure to which you refer?—Yes.

299. It provides: "Where the Secretary of State is satisfied that any manufacture, machinery, plant, process or description of manual labour, used in factories or workshops, is dangerous or injurious to health or dangerous to life or limb, either generally or in the case of women, children or any other class of persons, he may certify that manufacture, machinery, plant, process or description of manual labour to be dangerous; and thereupon the Secretary of State may, subject to the provisions of this Act, make such regulations as appear to him to be reasonably practicable and to meet the necessity of the case." That rather implies a code of regulations for dangerous trades generally?—A code of regulations for each dangerous trade.

300. Each class of dangerous trade?—Each class of dangerous trade which may be specified.

301. Look at the Mines Regulations Act, and the provisions with reference to the special rules. In Section 49 of the Mines Regulations Act, 1887, there are provided a number of general rules, prescribing in general terms certain results which are to be attained?—I should go rather further than that; I should say in many cases they detail the exact requirements to be observed.

302. Give me a general rule which you say illustrates that?—I should say a very good illustration was Rule 12, on the subject of the use of explosives below ground. Detailed precautions are set out there as to the conditions to be observed when shot-firing is carried on in dry and dusty or fiery mines; also as to the mode in which the explosives are to be taken below ground. That is one rule.

303. There are many other rules which do not give a definite requirement, are there not—the one I instanced before, Rule 1, that an adequate amount of ventilation should be attained?—That is an instance.

304. Remember that, and look at Section 51, which provides as follows: "There shall be established in every mine such rules (referred to in this Act as special rules) for the conduct and guidance of the persons acting in the management of such mine or employed in or about the mine as, under the particular state and circumstances of such mine, may appear best calculated to prevent dangerous accidents, and to provide for the safety, convenience and proper discipline of the persons employed in or about the mine." Does it not occur to you that that is a very different state of things to be provided for than is provided for in the Factory Act? This is a Rule which provides that in each mine there shall be established special rules for the purpose of carrying out in detail the requirements of the Act under the general rules?—It does not say so.

305. No; but is it not your view, in reading it, that that is the object of it? It is for the conduct and guidance of the persons acting in the management of such mine or employed in or about the mine as, under the particular state and circumstances of such mine may appear best calculated to prevent dangerous acci

Digitized by Google

Mr. M. Devinyne.
11 July 1906.

dents. I put it to you that the intention of that provision is that in each mine there should be established special rules for the purpose of detailing the way in which the work or the requirements of the general rule under the Act can be best carried out at that particular mine?—Well, I cannot speak, of course, as to the exact intention of Parliament when that section was introduced. I have rather called attention to certain defects which seem to us now to arise in applying the principle you mention.

306. I could not ask you to say what was the intention of the Act, because it is difficult to say; but, reading the section, does it not occur to you that that is the intention of the provision in Section 51?—I cannot say I should take that to be the exact intention.

307. Is it the view of the Home Office that it is possible to establish a uniform system of special rules to apply to the varying conditions of the different districts?—My suggestion rather was that on all matters common to the mines throughout the country special rules regulating those should be, so far as possible, identical in terms, but that special local practices would no doubt require additional rules to meet them.

308. Would that not rather point to including in the general rules provisions which might be generally applicable, and still leaving special rules established one way or another for the purpose of defining the method in which the management should be guided in carrying out such general rules?—Of course, at the present moment one could put into the general rules all the special rules dealing with subjects common to the whole of the mines, but there is no finality about such rules, and one reason why special rules are required, and one of the purposes for which the Home Office has been using special rules in recent years, is to establish additional general precautions on subjects like electricity, or timbering, throughout the mines of the country.

309. Have you included in your general rules matters of general application? Does it not occur to you that the proper way of establishing special rules, if the intention I suggest is the right one, viz., that they are intended for directing in detail how the general rules are to be carried out, is that they should be established and carried out in some way locally?—Even on that principle, so far as the special rules are intended to work out in detail the duties of certain classes of officials, in so far as they are the same throughout the country and have the same duties to perform, I do not see why the rules should not be more or less uniform.

310. Are you aware that they have not been able to get one set of special rules to apply to the County of Durham?—I know in many of the districts there is more than one code of special rules.

311. And that is because the different conditions in the different mines make it impossible to have one set of special rules to apply to all?—I am not aware that that is the reason why there are several codes. I believe an attempt is being made, or is in contemplation, to consolidate the Durham Codes.

312. You do not know that that state of things exists in Durham?—I do not say that. I say I do not know that that is the reason for having three codes of special rules there.

313. Now with reference to the discipline. Of course, if the Act is to be carried out there must be as complete discipline as it is possible to get?—Certainly.

314. You rather deprecated fining men—I am speaking now of the workmen—instead of prosecuting them? —I think there is something to be said against that practice.

315. Supposing you had a really good workman who made a slip, and who would feel very much indeed being brought before the magistrates, do you not think, in a case like that, it might be met by a fine?—I should have thought in a case like that a caution would have been enough.

316. It is a little difficult to pass over a breach, which may have been a serious breach, by a caution. However, in a case like that you would not think a prosecution necessary?—Of course, it is difficult to judge of hypothetical cases in general terms, but if there was a wilful breach of special rules *prima facie* there is a case for prosecution.

317. I suppose you would not go so far as to say that there should be no distinction made in cases?—I do not certainly go so far as to say there should be a prosecution for every breach of the special rules.

318. With reference to the prosecution of the owners, you mentioned a number of cases in some of which the prosecution failed. Now what conclusion do you ask the Commission to draw from that?—Would you refer me to the evidence?

319. That is as to the responsibility of the owner (Q. 35). Do you suggest there should be some more drastic measures of making the owner responsible?—The Home Office view certainly is, I think, that it should be made perfectly clear that an owner does not get out of his responsibility under the Act simply by appointing a certificated manager.

320. Is that not quite clear under the Act as it is at present?—I think the cases in the Courts I have referred to have made that very doubtful.

321. Would you mind looking at the Act for a moment? Section 50 is: "Every person who contravenes or does not comply with any of the general rules in this Act shall be guilty of an offence against this Act; and in the event of any contravention of or non-compliance with any of the said general rules in the case of any mine to which this Act applies, by any person whomsoever, the owner, agent and manager shall each be guilty of an offence against this Act, unless he proves that he had taken all reasonable means, by publishing and to the best of his power enforcing the said rules as regulations for the working of the mine, to prevent such contravention or non-compliance." Do you suggest there should be any further liability upon the owner than that? He is responsible for every breach of any rule by any person whomsoever unless he can prove that he had taken all reasonable means, by publishing and to the best of his power enforcing the said rules as regulations for the working of the mine, to prevent such contravention or non-compliance?—My point is not that there is anything wrong with the intention of Section 50, but that the decisions of the Courts have left it in considerable doubt how Section 50 applies.

322. I will ask you a question about the decisions in a moment. I see you have been good enough to give us a table showing "Prosecutions of Workmen by Owners for Offences under the Coal and Metalliferous Mines Regulation Acts during the five years 1901-05." Is there a statement showing the number of prosecutions of owners by the inspectors?—No, but I could hand in a table if the Commission wish it.

323. It would be useful to have that?—It shall be handed in.*

324. Then with regard to the decisions you have complained of. I think the first you mentioned was *Wynne v. Forrester*?—No; *Baker v. Carter* was the first, which is unfortunately not included in the document before the Commission.

325. We have no particulars of that?—I gave the particulars in my evidence, and I have the report here if the Commission wish to go into it in detail.

326. This case of *Wynne v. Forrester* raised this question: "The respondent in the case was an agent of a mine which was found by an inspector to be inadequately ventilated. Respondent, who was accompanying the inspector in the absence of the manager, promised that the matter should be remedied, but nothing was done. An information was laid against the respondent for non-compliance with the rule as to ventilation. It was proved at the hearing that occasionally, in the temporary absence of the manager, he gave certain directions for the management of the mine. The information was dismissed by the Stipendiary Magistrate. On an appeal against the decision of the magistrate, Coleridge, C. J. said: 'Our decision must be in favour of the appellant.'" In that case the magistrate's decision was altered and the man was convicted?—Yes.

327. Because there the agent had gone round and undertaken to remedy the defect which was complained of?—Yes.

* Appendix IV.

Digitized by Google

328. So that there is no fault to find with that case?—No, we do not complain of that decision.

329. Then there was a case of *Corfield v. Evans*. That case was this: "A man was fatally injured while working at a chaff-cutting machine in a mine, and the agent was convicted by the Justices for that no notice of the accident had been sent to the inspector, and the machine had not been fenced as required by the general rules. The agent appealed against the conviction, and it was contended on his behalf that he had appointed a properly certified manager and a proper staff of assistants for the colliery, who were responsible for the details of the working; that he himself only took general supervision of the commercial and general matters belonging to the company which owned the mine; and that it was impossible for him to attend to all the details of the management of the particular mine. The conviction was affirmed by the High Court." In that case again the Court held that he could not relieve himself from responsibility for an offence committed by someone else?—No; but that case, which is unfortunately not reported in the Law Reports and therefore not quoted in the Courts, seems to the Home Office to be hardly consistent with the later decisions. The law stated in *Corfield v. Evans* carries out, I think, what is the idea of the Home Office as to the responsibility of owners.

330. You cannot expect that the Judges of the High Court should be right in every instance?—And it is to remove any possibility of their going wrong that we make these suggestions.

331. Then there is a case you complain of, of *Stokes v. Checkland*. "The respondent in the case was the managing director of a colliery company. He did not personally interfere with the management of the colliery, and was only consulted when any expenditure of capital was required, and although he occasionally visited the colliery to satisfy himself and his board of directors as to the nature of the management, yet he did not in any way interfere in the actual management of the colliery underground, which was left in the hands of a properly appointed and competent certificated manager duly appointed under the Coal Mines Regulation Act. The rules under the Act, and the abstract of the Act itself, were duly published at the colliery, and he had authorised all necessary expenditure for the purposes of the safety and proper conduct of the mine as required from time to time. On the date named in the information he was not at the colliery, but was at other places a long distance from it, and did not know the state of matters underground on that date. On appeal from a decision of Justices, dismissing an information against the respondent in regard to a contravention of one of the general rules, it was held that the respondent was agent within the meaning of the Act, but had taken 'all reasonable means' by publishing and to the best of his power enforcing the rules to prevent a contravention of the rules within the meaning of Section 50." Is it the view of the Home Office that that man ought to have been convicted?—The Home Office does not suggest that an agent or owner should be responsible for what is possibly only a temporary violation of the rules of which they could have had no knowledge.

332. I want to ask your opinion about that case. Is it the view of the Home Office, under the circumstances detailed there, that the managing director of that colliery should have been convicted?—As I understand from the brief summary of the facts of the case given at the beginning of the report the agent could not have known of the state of things underground on that day, and there is no suggestion on the part of the Home Office that in such circumstances he should be responsible.

333. That is a case in which you think the owner was rightly discharged?—If you recollect, I referred to the judgment of Mr. Justice Bruce in that case as rather illustrating what the contention of the Home Office was.

334. I rather gathered you thought the responsibility of the owner under the present Act was insufficient—and, of course, that is a very important question?—Under the present Act as interpreted by certain decisions of the High Court.

335. I want to see how far your view is one which can be accepted by the Commission. In that case you think no injustice was done?—I think not, so far as I remember the circumstances.

336. Then let me refer to another case of *Stokes v. Mitcheson*. In that case "proceedings were taken by an inspector against the agent, manager, and under-manager of a mine in which Rule 1 as to ventilation had not been complied with. The defendant had appointed a duly qualified manager and under-manager, and the non-compliance with the rules, which affected only one heading of the mine, and was of a temporary character, was due to their negligence. There was no evidence of personal negligence by the defendant, and the defendant was not called as a witness. The justices found that the defendant had taken the proper steps to enforce the rules by appointing a duly qualified manager and under-manager, whose duty it was to carry out the rules, and that the violation of the rules was in no way caused by the defendant omitting to enforce the rules, and they dismissed the information." *Mr. M. Deleuingne.* 11 July 1906.

337. Do you think that is a case in which there ought to have been a conviction?—We certainly take exception to the idea on which the Justices seem to have proceeded, that the appointment of a duly qualified manager is sufficient to exonerate the owner under Section 50.

338. Do you think that is a case in which the owner should have been convicted?—In that particular case I admit there was no sufficient ground, because it turned out that the breach of the rule in respect of which the charge was brought was purely a temporary one, which the owner could not possible have known anything about. But what the Home Office feels about that particular case is that the judgments seem to have given countenance to the view which was taken in the first case of *Baker v. Carter*; that it was sufficient for the owner to have appointed a competent manager to exonerate himself from the rules.

339. I am afraid the Home Office could hardly establish rules for the guidance of the judges of the High Court; but in that particular case you again see nothing to complain of in the decision?—On the particular facts of that case the Home Office does not certainly complain that there was not a conviction. After all, my evidence on the subject is not with the intention of criticising the judgments of the High Court, but simply to point out that the judgments are not altogether consistent so far as the Home Office can see with one another; and we think it is desirable that what the Home Office thinks was certainly the intention of the Act should be made perfectly clear.

340. These are the only cases which the Commission have before them, and the other two cases you say you cannot supply; one was in Scotland, where you thought you might get a case stated by the Sheriff, and the other was the case of *Baker v. Carter*?—The Scotch case was not a High Court case. On the case as stated we felt unable to proceed with the appeal with any chance of success. I mentioned this as illustrating the exact difficulty which the Home Office has in mind.

341. I should like to have before the Commission any cases in which it is said that the owner should have been convicted when he was not convicted?—That Scotch case which I have mentioned is a case in which so far as the Home Office is able to form an opinion on the facts, the owner ought certainly to have been convicted.

342. I should like to see the statement of the case from the Sheriff, because I gather from your statement that the Home Office did not feel justified in appealing against the decision?—The Secretary has copies. Perhaps I might just mention to the Commission, as the case is not included in the print before them, the facts in *Baker v. Carter*, which was referred to with approval in the case of *Stokes v. Mitcheson*, which you referred to just now, and which seems to me to be inconsistent with the other decisions in *Wynne v. Forrester*, and *Stokes v. Checkland*, and *Cornell v. Evans*. I have a brief report here, and the facts were these: "An information was preferred against the part owner of a coalmine, in which one of the general rules regulating the employment of machines had not been complied with. The evidence was that the general rules were put up in various parts of the mine, and that the defendant occasionally visited the mine, but resided at a distance, and took no part in the management, which was under the exclusive control of the certificated manager, who was also part owner. The defendant was not examined as a witness, as he might have been

Digitized by Google

Mr. M. Delevingne.

11 July 1906.

under Section 63, Sub-section 4, but it was admitted that he had not personally taken any means to enforce the rules. The Justices found as a fact that the defendant had taken all reasonable means of publishing, and to the best of his power enforcing, the rules as regulations for the working of the mine to prevent such non-compliance, and dismissed the information." That was appealed against, and the High Court held that the Justices were right.

343. In that case I hear the Justices found as a fact that the owner had complied with the provisions of Section 50 necessary to relieve him from the responsibility?—I will read an extract from the judgment. Baron Cleasby said this: "Is not a man who has a share in a mine justified in leaving the management to a person who has the daily supervision of the mine, and who, the Act says, *shall* have the control of it—I think we ought not to interfere with the conclusion of the magistrates, and I base my decision on this, that a proper person, a certified manager under the Act, had been appointed to see that everything was done that ought to be done." I do not wish to press the circumstances in any particular case as to whether or not there ought to have been a conviction. But the point is this: that the dicta of the Judges in those decisions have thrown some doubt on the position of the owner, and the Home Office view strongly is that an owner should not be able to exonerate himself from his responsibility under Section 50 merely by appointing a certificated manager. He has a certain duty besides to see that the Rules are observed, and especially if his attention has been called by the Inspector to the fact that violations of the rules are being committed, he should do something more to see that they are observed in future than barely telling the manager to see that things are put right. It seems to me otherwise to be a very serious danger, because if the owner is allowed to exonerate himself by appointing a certificated manager, he can put in a certificated manager who is entirely dependent on himself, and he shelters himself behind the manager, and, while keeping the control of the mine practically in his own hands, leaves the manager to bear the brunt of the responsibility.

344. There are cases where he cannot shelter himself in that way, because there are cases where the Courts have convicted him. There are cases where he is not liable—I do not say "shelter" himself, but he is not liable—because he has justified himself under Section 50. Do you think it is possible to make any Rule which could define any better than Section 50 defines the liability of the owner? He is *prima facie* responsible "unless he proves that he had taken all reasonable means by publishing, and to the best of his power enforcing, the said rules as regulations for the working of the mine." Now let me read to you part of Lord Alverstone's judgment in the case of *Stokes v. Mitcheson*: "There are, I think, agents and agents. There may be an agent who is doing part of the duties of a manager, and there may be an agent who is taking such part in the supervision that he will only have the duties cast upon him which are ordinarily cast upon owners, but to say that Justices must convict an agent because he has done no more than appoint a fully competent and qualified manager and under-manager, and must convict him in respect of an offence which is found in fact to be due to the negligence on a single occasion of the manager, seems to me to be going a great deal further than we ought to go, and further than a proper construction of the section warrants us in doing"?—I do not suggest for a moment that the Courts should convict an owner in respect of an offence which is found in fact to be due to the negligence on a single occasion of a manager.

345. Can you suggest in what respect the Home Office desires an amendment of Section 55?—I think I have outlined that, so far as I possibly can, already.

346. That would apply to all cases?—I do not quite understand what you mean by that.

347. Can you suggest anything that would be fairer than Section 50: that the owner is responsible unless he can show, as provided for in the latter part of the section, that he has done his best to carry out the Act?—I think the interpretation which the Home Office put upon Section 50 is all that we require; but unfortunately it is not apparently the interpretation which has always been put upon it by the Courts.

348. You desire that a larger responsibility should be put upon the owner. Every one of these cases, I suppose, must depend upon the facts?—Of course.

349. Can you suggest any addition to the rule?—I am not prepared at the precise moment with the draft of an amendment of Section 50. I do not think that is desirable. I have tried to indicate in what respects, practically, Section 50, I do not say has been found defective, but has been found in practice to be capable of misinterpretation.

350. (*Chairman.*) I understand your point is that the Judges have used language from which it may be inferred that they take different views of this section, and, such being the case, you would prefer the section to be stated in clearer language?—That is practically my point.

351. (*Mr. Ratcliffe Ellis.*) Have you any statement showing the number of attempts which have been made by the Home Office to establish special rules since the Act of 1887, and the result?—I could, of course, have a statement prepared, but I am afraid it would be rather a lengthy piece of work.

352. Generally have they been successful in getting the rules established?—I gave the Commission, in my evidence on the previous occasion, the history of the attempts since the South Wales Arbitration in 1894.

353. Have you had any arbitrations besides the South Wales Arbitration in which you have not succeeded in establishing a rule?—I think we have had no arbitration at all since the South Wales Arbitration—certainly no important arbitration.

354. With reference to the Timbering Rules and the Electricity Rules, you got through all right?—We got through the Timbering Rules by throwing overboard a good deal which the owners strongly objected to, and it took us four or five years to get them through. That illustrates one of our strong objections to the present system.

355. You know there are other suggestions which have been made for the establishment of special rules?—Yes.

356. Have you any opinion to offer upon those suggestions?—Perhaps you would mention them.

357. In a Bill which was introduced some few years ago, in 1903, by Sir Charles Dilke and others, the proposal was made that there should be a Board in each mining district composed of three persons, the chairman to be a person who is not and has never been the owner, agent or manager of a mine, or a director of a company owning a mine, or a miners' agent, or employed in or about a mine, and who shall be appointed and may be removed by a Secretary of State; the second member to be a person who is or has been the owner, agent or manager of a mine, or a director of a company owning a mine, and who shall, subject to the approval of a Secretary of State, be appointed, and who may be removed by the owner or a majority of the owners of the district; and a third member to be a person who is or has been employed in or about a mine, and who is not or has not been the owner, agent or manager of a mine, or a director of a company owning a mine, and who shall, subject to the approval of a Secretary of State, be appointed, and may be removed, by a majority of the workmen employed in or about the mines of the district, the majority being ascertained by ballot in accordance with the rules which are made by a Secretary of State. Have you any comment to make upon that proposal?—The proposal did not commend itself to the Home Office; and I may add that it was dropped by Sir Charles Dilke in his Bill of the following year, and a different procedure substituted.

358. (*Mr. Enoch Edwards.*) I should like to ask you, arising out of questions which have been put by Mr. Ellis with reference to Durham on the subject of special rules, is Durham all under one inspector?—No; part of it is in the Newcastle district and part in the Durham district.

359. It would make a difference where the district is under two inspectors?—Yes.

360. Was that a matter which was responsible for the difference of special rules?—Partly perhaps; but I think Northumberland and Durham do go very much together, and I think that the suggestion recently has been rather that the Northumberland and Durham rules should be as much as possible assimilated. But I

Digitized by Google

am not prepared to say, as regards past history, whether that was the reason of separate codes.

361. It would be satisfactory to have one code of special rules if you have only one inspector, would it not?—It would be more satisfactory; no doubt that is the modern tendency—to have, as far as possible, one code for one district; but up to the present that result has not been attained.

362. I should like to put some questions on behalf of Mr. Smillie, as he is not present now. You are aware that there is a clause in Rule 39 of the present Coal Mines Regulation Act which states that "No person not now employed as a coal or ironstone getter shall be allowed to work alone as a coal or ironstone getter in the face of the workings until he has had two years' experience of such work"?—Yes, I am aware of that.

363. Mr. Smillie suggests that in Scotland the Judges have held that while a workman may not work himself, ten workmen may work together who have not been in a pit before?—That point has been put before the Secretary of State, and he referred the matter to the inspectors.

364. The intention of Parliament, of course, was that as it was a dangerous trade it was not desirable that a man who had no experience of working in mines should work by himself, but that he should work with a practical miner?—Yes.

365. The Judges have held, as I am told, in a case which was taken up, in which there were a number of men who had not had experience, that where there were a number of them employed, that did not come within the meaning of this clause ——

366. (*Mr. Ratcliffe Ellis.*) I should like to see that decision?—I do not think the attention of the Home Office has been called to that case, but the allegation was made a few years ago, and it was inquired into by the Secretary of State. I cannot lay my hand at the moment on the reply of the inspectors, but I know their reply was to the effect that they had never heard of such a case, and that in fact complaints of breaches of Rule 39 were extremely rare.

367. (*Mr. F. L. Davis.*) Mr. Ellis has dealt with several questions which I should otherwise have asked you, and the points with reference to special rules, discipline, and the responsibility of owners have been so fully dealt with by Mr. Ellis that I will not ask any further questions upon those points. I think that in your evidence you indicated that the examination by the workmen was considered by the Home Office to be a very important matter?—Yes.

368. I mean the inspections by the workmen, and the reports of those inspections made to the inspectors were considered by the inspectors to be very valuable?—I do not think, as a matter of fact, that very many reports are received by the inspectors as the result of the workmen's examinations. I think the opinion of the inspectors is rather that the system in itself is beneficial, for the reasons which I have stated in my evidence.

369. I will put in this way: that as a check on the management it was a good thing, and the Home Office would be better pleased if the men undertook that work of inspecting more thoroughly?—Certainly.

370-1. From that one would think that where the inspections by the workmen were most frequent there would be less accidents, but I ask you whether you have noticed that in the Midland district, where there are no inspections whatever by the workmen, there are the fewest accidents. It may be only a coincidence?—I think it is not more than a coincidence. Perhaps one might, on the other hand, refer to the Yorkshire district, which is one of the most dangerous districts in some respects, and is a district where the death-rate is low, and where General Rule 38 is used to a considerable extent. But it is very difficult, I think, to trace any direct connection in the matter.

372. Are you aware that in South Wales the owners, so far from objecting to their workmen making inspections, welcome them, and give every facility?—I have no reason as a general rule to suppose the contrary, certainly. There was one case the other day which was brought to my notice at the Home Office of some little difficulty having arisen, but I think that is the only case which I have come across for a long time.

373. On p. 8, at Q. 30 of your evidence you gave the finding of Sir Clement Foster in his annual reports for 1901, 1902 and 1903, in which he makes rather a strong remark as to discipline with regard to Scotland and Wales. Do you know at all upon what basis he arrived at his opinion: was it on returns, or from personal knowledge?—I think it was with reference specially to statistics of explosions of fire-damp. If you wish I can refer the Commission to the passage in his report.

Mr. M. Delevingne. 11 July 1906.

374. But it does not follow, does it, that because an explosion happens it is by reason of want of discipline?—No, certainly not. Shall I read the passage from Sir Clement Foster's report?

375. Yes, if you please?—Referring to the number of explosions of fire-damp caused by naked lights in mines under the Coal Mines Act, he says: "Table 56 repeats an old story. It has been drawn out, as in previous years, with the object of making a comparison between England, Wales and Scotland, as regards explosions of fire-damp due to naked lights, which in so many cases result from disobeying the statutory rules and regulations. Whether one judges by the number of persons employed or by the tons of mineral produced, it is evident that Scotland and Wales have a far higher proportion of explosions caused in this manner than England. England produced nearly twice as much coal as Wales and Scotland together, and yet there were only 35 accidents"—that was in 1901—"whilst Scotland and Wales had 85. The disproportion is likewise very marked if one compares the number of persons employed. It appears, therefore, that discipline is not so well preserved in Scotland and Wales as it is in England, and there is probably a greater resistance in those two countries to the introduction of safety-lamps." That is a comment which appears almost every year in the general report. The passage I have read is from the annual general report, which was edited by Sir Clement Foster, for the year 1901.

376. That only refers to naked lights, does it not?—Yes, that passage only refers to naked lights. With a view of assisting the Commission, I handed in a table showing prosecutions of workmen for various offences against the Acts and special rules, which further illustrate the point.

(*Mr. Enoch Edwards.*) That part of it as to the number of accidents due to naked lights showing a lack of discipline is true in South Wales.

(*Mr. Ratcliffe Ellis.*) The number of accidents being due to naked lights is true, but I do not know about showing a lack of discipline.

377. (*Mr. F. L. Davis.*) The one may not follow from the other. With regard to the question of discipline, I do not know whether you are aware, or whether it has come to your notice, that in our district the magistrates have stated on several occasions that the limits up to which they can impose a fine are very narrow?—Yes, that has been brought to our notice.

378. They have stated on several occasions that their discretion should be wider, because they only have the option of imposing a certain fine or sending a man to prison for a breach?—Yes.

379. There are very often objections to sending a man to prison, which Mr. Ellis has already referred to this morning. Does the Home Office suggest that any wider discretion should be given to magistrates in cases of that kind?—We have thought of that. I think an increase in the maximum amount of the fine, which at present is £2, might certainly be worth consideration. I might add that that is a point which the Home Office has noted. I understand you are referring to the question with regard to the workmen.

380. Yes. With regard to your evidence at p. 12, generally speaking on the question of inspection, can the Home Office suggest any better system than that which obtains at the present time, that is to say, the inspection by the management checked by the Government Inspectors, and by the inspection of the workmen?—No. I think the Home Office has no suggestion to make as to any radical alteration of the present system.

381. Mr. Ellis was asking you a few moments ago a question as to the number of arbitrations and the number of special rules: I was going to ask you a

Digitized by Google

Mr. M. Delevingne. 11 July 1906.

question with regard to the adoption of safety-lamps, and only upon that point. Can you tell us how many arbitrations there have been on a proposal by the Home Office for a change from naked lights to safety-lamps?—We have taken no arbitration since the great South Wales Arbitration of 1893. That included a rule on the subject of the introduction of safety-lamps, but it was opposed by the owners, and when the Home Office had to settle the matter by a compromise, that rule had to be dropped. Since then we have taken no arbitration on the subject of safety lamps, although as I mentioned in my evidence, in one or two districts the inspectors have been able to secure the introduction of rules on the subject without any arbitration.

382. On the other hand, in cases where the Home Office have suggested the change, have you had any refusals to adopt safety-lamps?—Perhaps you would ask the inspectors upon the question of the introduction of safety lamps in particular mines.

383. That is a matter which is left more to the inspectors?—Yes. I think the only case recently in which the Home Office have formally proposed a special rule on the subject of safety-lamps for a particular mine was after the Blaendare explosion, a year or two ago; but there the management, in view of the explosion, accepted the special rule without objection. Of course, very often the inspectors may secure the introduction of safety-lamps by virtue of their ordinary powers, acting on and enforcing the general rule on the subject without any resort to a special rule.

384. That is to say, in conference with the owner?—Yes, I mean in conference with the owner. But the Commission will get detailed information upon that point from the inspectors with regard to their different districts, and that, I should think, would be the better course.

385. At p. 29, Q. 143 of your evidence, you mention the timbering in the Courrières Collieries. Does the Home Office make any suggestion as to adopting a similar system to that adopted at Courrières?—The Home Office suggests that matter for the consideration of the Commission: the Home Office is not prepared to say that the Courrières system is either the best that could be adopted, or that it is suitable to English mines; but it is a matter which it desires to bring before the Commission for their consideration.

386. It is a fact, is it not, that the Home Office did make a suggestion some time ago, or, rather, recommend the Courrières system, and then the matter was dropped as it was not suitable to English mines?—We sent four of the inspectors to Courrières to inquire into and report upon the system there, and we published the report when it was received, and circulated it amongst the owners, calling their attention to the system, and suggesting that it deserved their most careful consideration. But the Home Office, I think, never made a definite suggestion that that system should be adopted in English mines to the exclusion of others.

387. At p. 23 of your evidence you refer to the Steam Engines Bill. It is suggested that a certificate of competency will be required under that Bill for winding engine-men at any collieries?—That is the proposal in the Bill.

388. In view of your answer to Q. 171: "The Inspectors in their Annual Reports continually refer to the steadiness and carefulness with which the men in charge of the winding engines do their duty," and the statistics showing the very small number of deaths, do you think that insisting upon a certificate of competency would be of any use at all?—As Mr. Gladstone has referred this subject to the Commission for enquiry, perhaps I ought not to express an opinion upon it.

389. (*Mr. Wm. Abraham.*) I understand that you have made a statement in the form of a complaint or otherwise that in the opinion of the Home Office the men do not take proper advantage of the right under the Act to inspect the collieries?—What I said was that in very many cases the men as a matter of fact do not avail themselves of their powers under General Rule 38.

390. You will pardon me, but I will ask you to tell me if you are not a proper person to answer the question: do you know since when the periodical inspection of collieries by workmen has been dropped in South Wales?—I do not think the figures I gave show that it has been dropped, but only that in a great majority of the mines in South Wales the men do not avail themselves of it, and in a certain number (I gave the figures in my evidence) they do.

391. Then will you compare the state of things ten years ago and the state of things at the present time; could you give us any reason why the inspections by workmen are very much less now than they were formerly?—I am afraid I have not any information with regard to the practice ten years ago. Perhaps you will get that information from the inspectors.

392. Have the Home Office any suggestion to make as to protecting workmen who make these reports if they should be discharged or made to change their places, or anything of that kind, in consequence of the reports which they make?—I think it would be very difficult to suggest in what way they could be protected; but I ought to say that the Home Office has never in my experience received any well-founded complaints that men were dismissed for making such reports, nor has it had any application to provide for their protection.

393. Since the question is raised one cannot help putting the other view of it. Then you do not happen to know as a fact that men have been discharged?—So far as I know no cases have been bought to our notice.

394. Or that men have been placed in less remunerative places of working after certain reports that have been made?

(*Mr. F. L. Davis.*) You do not suggest that that is a general state of things in our district now, do you?

(*Mr. Wm. Abraham.*) I am glad you use the word "general." If I were put in the box as a witness I could give you a few cases.

395. (*Dr. Haldane.*) The reports to the inspectors are confidential, are they not?—No; the general rule requires the persons appointed by the workmen to make a true report of the result of the inspection in a book to be kept at the mine and signed by the persons making the inspection, and if the report states the existence or apprehended existence of any danger, the owner, agent or manager is required to send a true copy to the inspector.

396. (*Mr. Wm. Abraham.*) Are you aware that it has been the invariable practice of late years, when an explosion or any great accident has taken place in a mine, that the reports made by the workmen are put in as evidence at coroners' inquests, and so forth?—No, I cannot recall that for the moment.

(*Chairman.*) May I ask who has access to those mining books; are they open to any workman who likes to look at them?

(*Mr. Wm. Abraham.*) They are kept in the office.

(*Chairman.*) Could any workmen or person employed in the mine go to the office and demand to see those books?

(*Mr. Wm. Abraham.*) I do not suggest that there would be any difficulty in regard to the workmen seeing them, but I am dealing with the use that is made of them if anything happens; if a large explosion or any accident of any considerable size occurs these reports made by the workmen are brought up by the management as testifying to the general character of the mine, and so forth.

(*Chairman.*) Do you object to their being brought up?

(*Mr. Wm. Abraham.*) Certainly; that is, I suggest, one of the great reasons why they should not be used in that way.

(*Chairman.*) Do you mean that these reports ought to be strictly confidential, or what is your view as to how these reports should be treated?

(*Mr. Wm. Abraham.*) My view is that they ought to be confidential between the workmen, the manager, and the Home Office. We have found on several occasions that the condition of a colliery a month before is brought up to mitigate, say, any supposed offence for quite a different condition when an accident occurs.

(*Chairman.*) Surely it is quite competent that that should be pointed out at the inquest or at any enquiry that is held; it would be pointed out that a month has elapsed since the enquiry was made, and that what

Digitized by Google

was the case a month ago might not be the case at the time of the enquiry. However, as I understand, you strongly object to those reports being produced in evidence at all?

(*Mr. Wm. Abraham.*) I certainly do object to the use that is made of them. Of course there are two sides to every question.

(*Mr. Ratcliffe Ellis.*) With great respect, I suggest that it might be the most important evidence; if workmen, who are most interested in seeing to the safety of the mine, make an inspection, the result of that inspection might be most valuable, or it might be worthless, and the book ought to be produced.

(*Chairman.*) Yes, I should have thought so, certainly.

(*Mr. Ratcliffe Ellis.*) The inspection might be made at such length of a time before as to have no bearing upon the question, or it might be made immediately before the accident, and might have a most important bearing upon it. The question as to its value is an entirely different matter; this is as to the question of its admissibility.

(*Mr. Wm. Abraham.*) Provided that the man making the Report was an experienced workman.

(*Mr. Ratcliffe Ellis.*) Again that is a question as to the value of the report; the question of its admissibility is a different matter.

(*Mr. F. L. Davis.*) Surely for your own sake you would not send any inexperienced man to make the report—at least I hope not.

(*Mr. Wm. Abraham.*) It is such a delicate question to deal with, and it was not I who brought it up, understanding the delicacy of it. We have had to deal with the matter, and we have had to find maintenance for the workmen. We have had every reason to believe that they are persecuted because of the reports they have made; a man is removed, say, from his place, and he goes to another colliery, and it is known.

(*Chairman.*) If Mr. Abraham has any evidence to show that there has been any sort of intimidation brought to bear upon a man after he has signed an unfavourable report to the mine, it would be most important that that evidence should be brought forward.

(*Mr. Wm. Abraham.*) I have asked whether the witness will give us any reason, or whether he knows that these examinations are much less frequent now than they were years ago.

397. (*Chairman.*) Well, what do you say?—I cannot answer that without looking up the matter. The years for which we collected information upon the point are quite recent years. But probably the inspectors would be able to speak to that subject much better than I can.

(*Chairman.*) Mr. Abraham, I should be very glad, if you have any sort of evidence to show that there is any intimidation going on, or any practices by which the men are in any way victimised owing to the reports that they make with regard to mines, to bring it forward, because it would be most important that that should be put an end to.

(*Mr. Wm. Abraham.*) I have tried to be careful and accurate with regard to this matter. I do not suggest that it is so now at the present moment: hence my question whether the witness knew the reason why it is done so less frequently now than it was years ago.

(*Chairman.*) Your statement is that it is done less frequently now than it used to be?

(*Mr. Wm. Abraham.*) Yes. I quite agree that the workmen do not avail themselves of their power under the Act to anything like the extent that they used to.

(*Chairman.*) You do not suggest that the reason of that may be that they are more satisfied now than they were before as to the management of the mines?

(*Mr. Wm. Abraham.*) I should not contend that the mines are not better managed now than they were. I know there is more care taken lately in selecting managers than there was previously. But I do not give up the other point, my Lord.

(*Chairman.*) You still suggest that there may be instances now in which men may suffer from giving bad reports as to mines?

(*Mr. Wm. Abraham.*) I am afraid so.

(*Chairman.*) If you can obtain evidence as to that, of course the Commission will be glad to have it taken.

Mr. M. Delevingne.

11 July 1906.

(*Mr. Enoch Edwards.*) While we are on this matter I may venture, perhaps, to mention an incident—I do not wish to pursue it further: there have been, no doubt, cases where managers have acted very stupidly because the workman has dared to report that there is a dangerous condition of things in the pit. I do not think that such a state of things obtains to that extent now, but I want to say why, in my judgment, this method of examination fails: it is because the workmen object to pay money out of their pockets and out of their wages to a man to inspect the pits for them. I think that is the real ground more than anything else; I do not think the other matter obtains so much now.

(*Chairman.*) Therefore you think that if there could be any system by which the cost of the inspection was borne otherwise than out of the men's pockets, there would be a good deal more inspection going on?

(*Mr. Enoch Edwards.*) I do.

(*Mr. Wm. Abraham.*) But that payment would require to be independent of the colliery owner?

(*Chairman.*) Yes; you do not suggest that the owner of the colliery should pay, but that the money should come from some other source?

(*Mr. Wm. Abraham.*) There is another point. I know it has been the custom in a number of collieries for the management to pay half and the workmen half.

(*Chairman.*) How did that answer?

398. (*Mr. Wm. Abraham.*) I have objected to it from the commencement; I have never agreed to it. I see that in your evidence you say at p. 8: "In several of the explosions which have occurred in the South Wales district it has been found that breaches of the special rules had been committed by the men. In one explosion in 1902 (Fochriw) tobacco and matches were found on several of the men killed, and two of the safety-lamps were found with the gauze removed." Has it ever been found in any of those cases that the explosion was caused by any rule being broken by the men?—In the explosion in 1902 which I mentioned I do not say it was demonstrated absolutely, but it was certainly the conclusion arrived at, that it was due to breaches of rules.

399. There could not be an explosion without gas, could there?—There might be a coal-dust explosion.

400. I mean from a lamp?—No, not from a lamp.

401. So that if there was an explosion, there must have been gas present before it could be caused to catch alight?—I have no doubt.

402. Then do you suggest that the men simply are in the wrong, if they are allowed to work in gas?—I am not making any suggestion of the sort; I merely say that one cause, at any rate—I do not say it is the sole cause—was the breach of the rule. I am not prepared to say whether the presence of the gas was also an offence on the part of the management.

403. The important point in connection with this as it has been traced is that the explosion, wherever it has taken place, has been caused by matches or the gauze being taken off?—Certainly; that is my evidence.

404. (*Chairman.*) The verdict in that case seems to have been that both the men and the management were to blame, that is to say, that the management were to blame for not withdrawing the men sooner, and the men were to blame apparently for working with naked lights when they ought not to have done so?—Perhaps I might read the short account which I have of the explosion; in the annual general report for 1902 (p. 76) the accident is described as follows: "A fall took place in a main drift and interfered so much with the air current that gas accumulated; it took fire at the flame of a safety lamp which had been unlocked and opened by a workman."

405. (*Mr. Wm. Abraham.*) That is a question of an open lamp. Then with reference to the question of matches and tobacco, that is considered to be a breach of the rules, is it not?—Certainly.

406. What I want to ascertain is whether the explosions which have taken place in South Wales were caused by this breach of rules. What was the light

Digitized by Google

Mr. M. Delevingne. 11 July 1906.

which was generally used in this pit, Fochriw?—I am afraid I cannot say without refreshing my memory. Would it not be better if the inspector of the district should speak as to details?

407. Naked lights were used during the day while the men were at work. In another mine where an explosion took place, namely, Abertysswg, was it not found that it was the practice to reduce the revolutions of the fan in the night considerably below what they were in the day?

(*Chairman.*) Would not the inspector of that district be the best person to answer that question?

408. (*Mr. Wm. Abraham.*) I quite agree, but it happens that this gentleman has mentioned all these matters. If you think it is best to leave it there, I will, but the witness is from the Home Office. I should like to know what are the powers of the Home Office to compel the management and workmen at collieries to adopt its own suggestions. Supposing the Home Office or the inspector advise a certain course to be taken have they any power to enforce that instruction?—Do you mean supposing the inspector advises that safety lamps should be introduced in a mine?

409. Very well, I will put it in that way?—The Home Office has no power to say to the owner "You must use safety lamps; it can only, as I explained on the last occasion, secure the introduction of safety lamps in one of two ways, namely, either by proposing a special rule that safety lamps shall be used in the mine, and any such proposal would be subject to objection by the owner, and to arbitration (in which, of course, the Home Office might win or it might lose), or else by taking proceedings in Court against the owner of a mine for a violation of General Rule 8—and, of course, the Home Office might or might not be successful in those proceedings. It is our suggestion whether some more definite rule than General Rule 8 should not be laid down on the subject of introduction of safety lamps. We do feel that General Rule 8 is indefinite.

410. The Home Office itself feels now that its power is not sufficient to enforce its own order or the order of the inspector whom it employs?—It has felt for some time that General Rule 8 is not sufficiently definite, and, as I mentioned, in some districts the inspectors have secured the introduction of a special rule on the subject in much more definite terms.

411. In order to strengthen this point I must put this to you: You know it is a fact that the inspectors strongly advised the management to use safety lamps at Pont-y-Rhyl some time before the explosion took place there?—Which explosion was that?

412. At Pont-y-Rhyl, one of the mines in the Garw Valley?—Can you tell me the year. I am afraid I do not remember it?

413. It was recently, within the last three or four years?—I am afraid I do not remember the name, but perhaps we know it under another name.

(*Mr. Wm. Abraham.*) I think it was at Pont-y-Rhyl Colliery; the inquest was held at Pont-y-Rhyl, I know.

(*Mr. Enoch Edwards.*) The pit was within a few yards of the place where they held the inquest.

(*Mr. Wm. Abraham.*) I want to get this fact on the evidence, my Lord, because we shall all agree, I think, that when the inspector has strong reason for making and does make recommendations, there should be some power to enforce them.

(*Chairman.*) The evidence has gone to that, Mr. Abraham.

(*Mr. Ratcliffe Ellis.*) I do not know that we should agree to the inspector having power to enforce all that he says should be done. If it is in the Act, he would have a right to enforce that.

(*Mr. Wm. Abraham.*) I do not suggest that the inspector should have the power, but I suggest that the Home Office should have the power.

(*Mr. Ratcliffe Ellis.*) Not the absolute power to do anything. If it is in the Act of Parliament or in the Special Rule the Home Office have power to enforce it, but they have not power to make an Act of Parliament.

(*Mr. F. L. Davis.*) The present position is that the inspector or the Home Office can recommend the change, and then you can go to arbitration. I should like to point out that it is very necessary for us to retain that power to go to arbitration, because there is a side issue to this in Wales that the men contend they should have, and they demand, 7½ per cent. additional wages when the change is made from naked lights to safety lamps, so that if the inspector says, or the Home Office says: "You must change to safety lamps," the men make a demand for 7½ per cent. advance.

(*Mr. Ratcliffe Ellis.*) In another district the invariable rule is that when safety lamps are introduced it means 7½ per cent. increase to the men.

(*Mr. Enoch Edwards.*) I do not think the question of wages should be discussed here at all. What have we to do with the price of coal and the question of wages in discussing the question of safety?

(*Mr. F. L. Davis.*) This much, I take it, Mr. Edwards: The question of wages cannot be left out of consideration, because if you are going to lay down by Act of Parliament such strenuous rules and conditions that one cannot make mines work so as to pay, then they will have to stop, and you will have to close all the mines in the country.

(*Witness.*) I have now before me the report on the Llest Colliery (Pont-y-Rhyl) explosion in 1899—the explosion to which Mr. Abraham just referred. I find in the report of Mr. Robson on this explosion, he says at p. 13: "On the 24th July I addressed a letter to the owners calling their attention to what appeared a violation of the 8th General Rule. At the inquest it was stated that my letter had not been received by, nor its contents communicated to, the owners, the manager taking upon himself the whole responsibility in the matter."

414. (*Mr. Wm. Abraham.*) Of course, that was the report?—Yes, that was the report.

(*Mr. Wm. Abraham.*) That is the point, my Lord, that we want something to strengthen the hands of the Home Office or of the inspector.

(*Chairman.*) We shall have to consider whether, for the purpose of establishing special rules, some different system than that at present in force is desirable. The Home Office themselves suggest that the system ought to be something similar to that which obtains in the case of the Factory Acts.

(*Mr. Wm. Abraham.*) Will that meet the case?

(*Chairman.*) We shall have to consider that by-and-bye. We have, of course, all the statistics as to accidents before us, and we can go through this when we are making our report.

415. (*Mr. Wm. Abraham.*) Will you state the reason why the system of settling special rules by arbitration was given up in South Wales?—I can hardly say that it has been given up; but we have not resorted to arbitration on any large scale since the great South Wales arbitration of 1893 and 1894, and I think I have said it was partly on account of the expense and the tedium of the proceedings.

416. And on account of the obstruction?—On account of the way in which that arbitration dragged on, and the impossibility of coming to any definite conclusion.

417. Quite so. Do you know that it is a fact that the Court refused to allow the workmen to take part in that arbitration?—I cannot at this moment say of my own knowledge that that occurred, but before the Act of 1896 there was no statutory power for the workmen to be represented. That, however, was dealt with by the Act of 1896, Section 2 of which provided for the workmen being represented at an arbitration.

418. Mr. Davis asked a question about winding enginemen having certificates. Has the Home Office any opinion upon that point?

419. (*Chairman.*) You mean upon this Bill which is now before Parliament to compel persons to have certificates before they are employed in winding?—I stated to Mr. Davis that as Mr. Gladstone has asked this Commission to consider the subject I ought, perhaps, not to express any opinion on the point.

(*Mr. Wm. Abraham.*) I suppose certificates of all kinds are thought necessary, because they are evidence of greater efficiency on the part of the men procuring them?

(*Mr. Ratcliffe Ellis.*) In what?

Digitized by Google

(*Mr. Wm. Abraham.*) In the performance of their duties.

(*Mr. Ratcliffe Ellis.*) You would have to consider what duties and what particular qualifications are necessary.

420. (*Mr. Wm. Abraham.*) Is it not the idea, with regard to men obtaining certificates of competency, that it is an assurance of their abilities in the performance of their work?—My answer to that would be that in cases where the certificates are required the object certainly is to ensure that the men shall have reached a certain standard of efficiency and competence.

Mr. M. Delevingne.
11 July 1906.

421. Quite so; and in the opinion of the Home Office, where hundreds of men have been appointed to do this and that, each engineer doing those things ought to be a competent man?—Certainly he ought to be a competent man.

Mr. Joseph Samuel Martin, I.S.O., called and examined.

Mr. J. S. Martin.

422. (*Chairman.*) You are one of the inspectors of mines, and your district is the southern district, I understand?—That is so.

423. What is the duty of an inspector of mines?—It is to promote and enforce the uniform observance of the Acts relating to mines and quarries by owners, agents, managers and all persons employed; to visit mines and quarries with a view to seeing whether the requirements of the several Acts and Special Rules under them are being complied with; to consult with those in control of works with regard to matters connected with the working of the mines, quarries, and other works in times of difficulty, and to assist them by advice where this can be done and is acceptable; to investigate complaints from workmen and others with reference to the safe working of the mines and quarries, and the employment of females and young persons.

424. Are you quoting from any document?—I am quoting from notes of my own evidence which I have prepared.

425. Not from any public document?—Well, it is taken more or less from our instructions.

426. This is your view of the instructions which you receive?—Yes. To investigate the cause of fatal and, as may appear desirable, non-fatal accidents; to attend inquests with a view to assisting the coroner and jury in arriving at the cause of death, whether through negligence on the part of any person or a pure accident; to see that special rules are established at works where they are required or desirable; to protest against dangerous practices at mines which are not provided against in the Acts or special rules, and, where necessary, to give notice to remedy them; to conduct office work, and to give necessary instructions to assistant inspectors—I am now dealing with the duties of the chief inspector of the district.

427. The principal inspector?—Yes; to consider the assistant inspectors' reports, and the evidence taken in full at the inquests; to correspond on irregularities which may have been found; to compile statistics; to make an annual report, and to make special reports when called upon to do so; attend board meetings and meetings of owners or representatives of owners and men for the purpose of discussing questions which arise; and numerous other matters.

428. With regard to the various districts in which the United Kingdom is mapped out, have you anything to say?—I do not exactly understand what the point referred to is.

429. The districts, as I understand, are composed of mines of very different descriptions, and are mapped out geographically, without, apparently, very great reference to the particular classes of mines that are in those districts?—They include all mines and quarries in those districts.

430. A district may contain, and very often does contain, I suppose, very many different descriptions of mines?—That is so. However, the character remains in a great measure the same.

431. So that in the southern district you would probably not have any experience of mines similar, say, to the Lancashire mines?—Oh yes, more or less. You may say that the character of the mines would be all the same; there may be certain difficulties in one, or certain difficulties in another, but the character of mining remains the same.

432. I should have thought that to some extent such a geographical division of the United Kingdom would have led to this, that certain inspectors would have far greater knowledge of certain kinds of mines than of certain other kind of mines?—That would be so.

433. An inspector in the south would have a greater knowledge of a particular kind of mine, and an inspector in the north would have a greater knowledge of another kind of mine?—Some have more experience in coal-mining than in metalliferous mining.

434. But even if you only take coal-mining, the characteristics are very different?—The character of the mining remains practically the same.

435. Your view is that the character of the mining operations remains substantially the same in all the districts?—Practically so—in principle: there may be differences in detail.

436. You have, as you say, to undertake a large number of underground inspections. Are you able to get through the whole of your district in the course of a year?—Do you mean personally?

437. Yes?—No.

438. To what extent can you get through your district yourself?—I make rather more than 100 inspections personally in the year.

439. How many assistants have you?—Two.

440. How many inspections do they undertake in the course of a year?—I am sorry I forgot to bring that information with me.*

441. Would you say that every mine within your district is inspected underground either by you or by one of your assistants in the course of a year?—Practically last year all the mines were inspected, except, perhaps, a few that had 10 men or 5 men employed in them, or something of that sort. But practically all coal mines were inspected last year.

442. All coal mines under the Coal Mines Regulation Act containing 30 men and upwards?—No, any number of men.

443. Even 30 or less?—I think there have not been three mines left out—certainly not half a dozen—where there was even only one man employed.

444. Then you would say that with regard to the number of inspectors, you and your two assistants can thoroughly investigate the underground conditions of every mine in your district in the course of a year?—It depends upon what you call "thoroughly"; we inspect them, but on an inspection one does not go all through the mine.

445. How are you guided with regard to the parts of the mines you go through or do not go through?—In an ordinary inspection the inspector would be guided by the plans, or, where he had been at the mine before during the same year he would take another portion of it from that which he had been in previously. I and my assistants take a certain district or districts, and deal with those as practically an example of the condition of the mine.

446. In the course of your duties you have to take proceedings to enforce the provisions of the Mines Regulation Act?—That is so.

447. How often have you to take those proceedings. Is it a constant thing?—I can give you the number of cases that I have had in the last 10 years: in 1895 there were 5 persons or firms proceeded against; in 1896, 2; 1897, 12; 1898, 15; 1899, 15; 1900, 5; 1901, 19; 1902, 9; 1903, 3; 1904, 1; 1905, 12.

448. Then there is a very great difference as to the number in the year; the maximum number you have given is 19, and the minimum is 1?—Yes.

449. Is there any special reason why that should be so?—Cases did not present themselves which I considered it necessary to bring before the Secretary of State.

* Q. 680 *infra.*

Digitized by Google

Mr. J. S. Martin.

14 July 1904.

450. There is no reason that you can point out for the difference?—No.

451. Would you have a larger quantity of prosecutions directly some new regulations were instituted?—No. Under those circumstances we work the matter generally so as to get the regulations in as quietly as we can, and to get them in with as little friction as possible. It would rather tend the other way—at least in my case it would.

452. In your case you think that the promulgation of new regulations tends to decrease the number of prosecutions that it is necessary to institute?—Well, I should try to work them in by personal influence and otherwise, with as little friction as possible, and give them time to become accustomed to the new regulations.

453. Do you always attend personally at every inquest, or do you sometimes send your assistants?—My assistants attend as many as, or more, than I do.

454. You do not think it necessary that you should yourself attend every inquest that you possibly can?—I do attend about a third of them in the district. But full notes are taken of the proceedings at the inquests by my assistants, and those notes are sent to me, and I consider them; besides which, I consider their reports.

455. Then you would be just as satisfied that one of your assistants should go to an inquest as that you yourself should go—or almost as satisfied?—Unless there is something special in the case, when I attend myself.

456. You have in addition to your work of inspection a good deal of clerical work to do, I understand?—Yes.

457. You prepare your annual report and your statistics, and that work, of course, you must do. I believe also you have a certain amount of clerical work, have you not?—I have a secretary, without whom I could not get on at all.

458. Would you desire to have any further assistance?—I am quite satisfied at present.

X 459. You are satisfied with the assistance you have?—I think perhaps if more emolument were allowed I might get more time from my assistant.

460. You mean that your secretary does not give up the whole of his time to you?—No.

461. You would rather that he was paid better, and that he gave up more of his time for the purpose of doing clerical duties for you?—Well, it is a lady who acts as my secretary, and she will come at any time that I require her.

462. She does so now?—Yes. Then I am out of pocket myself.

463. You yourself pay her more than the amount that you are allowed for her assistance?—I do; but office work occupies me myself from three to four hours a day, on an average, practically.

464. You say you could not do your duty as well as you would like to do it unless you paid your secretary out of your own pocket?—To some extent. I consider that she is underpaid now.

465. Even with the extra remuneration that you give?—Yes. I may also say that I believe I have more than any other inspector.

466. Do you mean that you get more clerical assistance?—I have a larger allowance for clerical assistance. That was granted to me when I took over another district; the Cornwall district was attached to my district some years ago, and then I got the allowance which was made for the two districts.

467. But supposing you had a greater allowance for your secretary, would it make much difference in the time which you would have for the actual work of inspection?—It would make some difference—not a very great deal.

468. Then we come to the subject of electricity rules; I understand that you desire to give some evidence to the Commission with regard to the electrical assistance that you ought to have?—That question was put in the statement which was sent to me. Expert assistance will be necessary from time to time and should be allowed upon application to the Secretary of State, and I think assistant inspectors should be required to have a good knowledge of the subject upon future appointment.

469. It has been arranged for, has it not, that assistants are for the future to be examined in electricity. Is that not so?—That is a question for the Home Office. I can say that I know in regard to the next examination notice has been given to that effect to one of my present assistants who is a temporary man; that is all I can say.

470. So that if you had an assistant or two assistants who passed an electrical examination, that would be all that would be required?—Yes. Of course, I do not know what the effects of the examination may be, but they ought to have a good knowledge of the subject. Then, beyond that, expert knowledge may at any time be necessary; it would not be constantly necessary, but it should be supplied if asked for.

471. You mean that if you want expert electrical assistance in any way you should be able to get it on application to the Secretary of State?—Yes, if particular points arise; that is my opinion. We ought to have such expert electrical assistance upon any points that we are not satisfied about in our own minds. You cannot expect the assistant inspectors even in future appointments to be absolutely what one may call thorough electrical engineers.

Q 3 Co

472. With regard to inspection under Rule 38 persons appointed by the miners themselves, to what extent is that power exercised in your district?—Examinations under this rule are made at about twenty mines in the district.

473. Out of how many altogether?—I do not think I have that information.

474. The number is 185 coal mines, I think?—Of those perhaps one-third might be taken as being extensive mines.

475. In one-third only you would expect the men to exercise this power?—That is all in which they do do so—one-third of the larger ones.

476. Only one-third of the larger ones?—I do not think it is done in many more than that.

477. How many of the larger ones do you say there are. There are 185 altogether, apparently?—The number employing over 300 men is about fourteen to sixteen; those are companies which have in some cases three or four mines. There may be about fifty large ones, perhaps.

478. And in about twenty mines you say the men have availed themselves of this Rule?—About that number.

479. Would you wish that they should avail themselves of this Rule to a greater extent?—In some cases they only make the inspection, perhaps, once a year or twice a year, while in others they make it very nearly monthly, or frequently, and with good results.

480. Do you find from your experience that the results vary in excellence according as the inspections are numerous or not, and do you find that if they only inspect the mines, for instance, once or twice in the year, that is sufficient, or do you think that they ought to inspect the mines once a month?—They might make an inspection more than once a year, but I think I would make it compulsory at every mine once a year. X

481. You consider that the men should be obliged to make an inspection by their representatives at least once a year?—Yes, I think they should. I might refer to my report of 1901, at p. 21, where I give a list of the mines and the numbers of examinations in each in 1901. X

482. Have you drawn any general conclusion on the subject?—I have referred to it again in 1902, at p. 20 of my Report, and in 1903, at p. 17. I think it is desirable that such inspections should be carried out with frequency, and that it should be carried out compulsorily in every mine at least once a year, and that the men should be entitled to have an examination as at present without notice when they desire it, but not (unless there exists serious complaint in the report) oftener than once a month, unless decided upon by a general meeting of the men.

483. How would you suggest that it should be paid for—as at present by the men, or how?—It rests with the men, and if it is to be independent it would be paid for by them on their own behalf. X

484. Then would you suggest that the men should pay for it?—With regard to the pay, I do not take that into consideration; that is a matter which must be arranged by some outside authority.

Digitized by Google

485. You say it must be done?—I should say that it ought to be done by dealing with it in this way, that it should not be done oftener than once a month.

486. Not compulsorily?—No, I would not make it compulsory once a month, but compulsory once a year.

487. And you think that it should not be done oftener than once a month?—Not unless it was decided upon by a general meeting of the men. My reason for that is that it would be a check upon this right being abused in the opinion of the manager by a cantankerous individual or committee, and at the same time it would give the body of men the right, if considered advisable to exercise it, against, in their opinion, a cantankerous manager or management who at some time may object to it.

488. Have you any reason from your experience to suppose that the men are at all intimidated into not exercising this power?—That is not my experience, but it has occurred that where the men have made an examination within a month it has been refused to allow them to make a second examination with a view to avoiding either what you might call a cantankerous representative of the men abusing the right, or a cantankerous manager preventing the right being exercised—I am speaking now of "cantankerous" in the sense in which the matter presents itself to the opposite side—the cantankerous manager would be considered by the men to be so, and the cantankerous representative of the men would be considered by the employer to be so. I would allow a general meeting of the men to decide whether the second examination should be made or not. My own experience is that as a rule there is no objection to it, but it has occurred that there has been objection made.

489. Sometimes the managers do object to the men inspecting mines when they have asked to do so?—Yes, to men inspecting beyond their legal right.

490. Have you had it suggested by any miner that he would not like to make an adverse report on a mine for fear of being dismissed or anything happening to him to his detriment?—I do not think that exists.

491. You have not heard that suggested?—I cannot say I have not heard it stated, but I do not think it exists; it has never been seriously represented to me to be so, at all events in my district. I do not think it exists in my district.

492. Do you think it ever did exist in your district since you have been there?—I do not think that from that point of view it has. I cannot go back to twenty years ago.

493. At all events, you do not believe that for a very considerable number of years such a case has existed in your district?—I do not think so. In regard to such matters in my district, things work very well and very smoothly.

494. But you would like to see many more inspections and many more mines inspected by the men than is the case at present?—I should like to see it done from time to time; I think it has a very good effect.

495. Do you wish to say anything further under the head of Rule 38?—The examiners should be required to make detailed reports, as is now generally done, at once, upon coming out of the mine, and in their own handwriting, as it is required from the officials to make theirs under General Rule 4. Then, further, with regard to that question, if I may, I will put forward what I have made a note of: with a view to making the men know and understand that they ought themselves to take a stand upon any point of danger, I would urge the desirability of miners' leaders in their addresses charging the men from time to time that they individually must not remain at work in any place which is not properly ventilated, such a state of things being either indicated by a cap of gas on the flame of the safety lamp with which they work, or by lights burning dimly or otherwise indicating weak ventilation. It is only by the men in that way leaving a place and refusing to work in it when not properly ventilated that the details can be carried out.

496. (*Mr. F. L. Davis.*) Do you say in places that are imperfectly ventilated?—Yes, or otherwise dangerous—which it is not their duty to repair. In my opinion the men must be their own guardians, as no staff of Government inspectors could provide against constantly occurring sectional and detailed changes. It should be made clear to the men that if they do remain at work where there is danger, which it is not their duty or work to remedy, they run undue risk, and render themselves liable to severe penalties, going even to the extent of three months' imprisonment. All the philanthropy of miners' leaders, of the Government, and of the public, with regard to Government inspection, will avail nothing if the men themselves remain unconcerned and passively accept the risk until an accident occurs. That is my view of the matter. Changes are constantly taking place, and the men on the spot should not remain when there is a danger which they cannot themselves remedy, or which it is not their duty to remedy.

497. (*Chairman.*) You think that the men are sufficiently instructed to be able to tell for themselves approximately when there is danger?—Yes, I refer of course only to such danger as they observe in their own places.

498. Do the men understand the danger indicated by danger light burning dimly?—I think they do.

499. I suppose they have practical knowledge of what is indicated by caps on their lamps?—Yes.

500. They understand with regard to the size of the caps, and so on, and they have a fair knowledge with regard to the danger indicated?—I go so far as to say any cap.

501. You go so far as to say that if a miner sees any cap on his lamp he ought to cease working?—He ought to leave the place. The men know, or most of them know, but some of them do not read the rules sufficiently, and they do not appreciate the matter.

502. Then with regard to the question of supervision and discipline by owners, you have something to say as to discipline being enforced by prosecution or by fine. What is your view on that point?—Last year there were 75 prosecutions by owners in my district, and a number of apologies were also enforced—I should say perhaps 50, more or less—as optional with monetary fines. I cannot give the number of apologies exactly, I have not noted them, but it would be about 50, more or less. I deprecate private fines, that is to say, fines which are taken off in the office and not made public, as my view is that a fine is not inflicted with the object of punishing the individual, but rather as a warning to the men generally.

503. Is that system of private fines a legal one?—I believe it is not.

504. But it is in force, to your knowledge?—I fancy that it is.

(*Mr Ratcliffe Ellis.*) It is agreed to, and if it is agreed to it is legal.

(*Witness.*) In the case of the apologies they make a written apology which is printed and posted up, stating that they apologise for breaking such and such a rule, and that they promise in the future to be more careful in carrying out the rules, and they say, "I am willing to pay so much to such and such an object." That is posted up then, and it is in large characters, and it is a warning and a caution to the men generally, which is what I consider most desirable, rather than the punishment of the individual.*

504. (*Chairman.*) Then you would rather see that kind of punishment than that a man should be sent to prison?—I say that if such a mode of punishment becomes too frequent at a place, then the management must go further, and must support that action before the magistrates. Otherwise I should not be satisfied.

505. I understand you wish to say something about the statement at p. 122 of the General Report for 1902, as to the action of the Miners' Union in paying for the defence of men prosecuted by owners for breach of rules?—I have not looked up that question, but I may say this much for my own district: the Miners' Union in my district used to defend nearly all cases in which owners proceeded against men for contravention of the rules, and used to drag managers through the mud in cross-examination. There were one or two very virulent solicitors, and they used, in their cross-examination of managers, to go far beyond what was reasonable—or, at least, it was considered so. But now they only defend cases which are considered to be unreasonable, and which it is quite justifiable to defend—cases either of doubt or where it is reasonable to defend.

* *See* Appendix XII.

Digitized by Google

Mr. J. S. Martin.

11 July 1906

506. You have no fault to find with the Miners' Union on that point now?—No. I am speaking now with regard to the views of the managers rather than my own, as to what happened previously.

507. You do not say that in your opinion the Miners' Union were ever to blame: you express no opinion upon that?—Personally, I did not object to the miners' agents defending cases, but I would object to their cross-examination of the manager in what you might call an unfair manner.

508. But do you think it would be right for the Miners' Union to defend cases in which it was pretty clear that the miner was in the wrong?—I am glad to say that I am quite satisfied that in my district now they do not do so, and for some years past they have not done it—at least so far as I am aware. Of course, I must qualify it to that extent.

509. How far do you think inspection by the officials of the mine is adequate under General Rule 4?—General Rule 4 seems to work fairly satisfactorily, but I think it is capable of improvement in some at least, and perhaps a good many cases, by a reduction in the size of the districts, and (I am now expressing my own views) the examination being made by the examiner within two hours before the commencement of the shift of which he would have charge. I do not like the night fireman examining for the day shift.

510. You have tried to introduce a special rule requiring at least two inspections in the course of a shift?—Yes, but I did not get that into the rules.

511. In answer to a question put by me, Mr. Delevingne, of the Home Office, said, "Recently in the Southern district (Mr. Martin's district) the inspector made an attempt to introduce a special rule requiring at least two inspections during the course of a shift, but this was opposed by the owners, and had to be dropped." Is that so?—Yes. I think the examiner should visit the roadways, working-places, etc., in his district throughout at least twice while the shift of men is at work, and even three times in collieries where gas is given off pretty freely, or where accidents are frequent from one cause or another, in order to compel the men, who will not act as referred to in my remarks upon General Rule 38, to conform to the rules and instructions for their own and other people's safety, and also to see that the roadways are kept in good order, and are clean, etc. Where collieries extend over large areas there should be overmen, superior to the examiners, in charge of two or three of such districts. In this way proper discipline can be expected, and attained, especially if the manager himself is consistently strict.

512. With regard to bringing home to the owner responsibility in connection with the working of a mine we have had some of the legal decisions under discussion already before the Commission. Do you wish to say anything about that subject?—In view of the fact that in many cases managers are not independent, it seems undesirable that owners should not be responsible. Owners, and, in the case of limited companies, chairman of directors, and members of boards of directors, exercise very strong pressure upon managers and agents directly and indirectly, and yet try to and do escape responsibility in many cases.

513. How do they escape responsibility?—Some of the decisions allege that having appointed a manager they have done all that is required.

514. We have gone into that point pretty fully this morning?—That is all I have to say on the subject.

515. Then as to accidents, first of all we will take accidents from explosions. Are explosions increasing or decreasing?—Explosions of gas and coal dust have very materially declined in my district as shown by Tables 26, 27, 28, 29, and 31, pages 24, 25, and 27 of my report for 1900, and Appendix 4, pages 79, 83, and 84 of 1905 report. I think if you will refer to those passages you will find the information set out.

516. I have your last report before me?—With regard to that matter I have had taken out the number of non-fatal accidents which have also taken place.

517. Is that in your report?—I have added it to the table in this copy of the report. If you would like to see it, I can put in a table showing that.

518. Are there any observations which occur to you as to the addition which you have made to Appendix 4?—I think it tends to show that there is a reduction, that is all.

519. It does not materially alter the situation from that shown by the first draft of the appendix. I mean the fatal accidents and the non-fatal accidents I suppose are about the same in the usual proportion?—Upon that I would refer to the table which is to be found further on in the report. If you will refer to p. 85 (Appendix 5) you will find that in Monmouthshire since 1886-7—that was when I came into the district—the number of fatal accidents, with the exception of 1900, when the Llanerch explosion took place, is very small as compared with the previous period. I refer to Monmouthshire more especially because that is the part of the district in which safety lamps have been most largely introduced. Then if you refer again to Somersetshire you will see that since 1895 there has not been a fatal explosion there, and it was then and subsequently that I got some firms to put in safety lamps; they have gone on for, I think, ten years without a fatal explosion there. I attribute the decline in the number of explosions to the introduction of safety lamps and improved discipline, as also to greater care in blasting and the use of permitted explosives.

520. Do you suggest any further regulations?—I strongly urge the compulsory use of safety lamps in all mines in which firedamp is given off.

521. What would be your test for firedamp?—The finding of it.

522. Do you mean by safety lamps, or by some more delicate test?—By safety lamps.

523. You think safety lamps would be sufficient?—Yes; if it is found by safety lamps then I would urge their being introduced.

524. You know that there are more delicate tests invented?—But these cases which I speak of are only cases where fire damp occasionally occurs.

525. You think that would be quite sufficient?—Yes. The argument against the introduction of safety lamps has always been that more accidents will occur from it not being possible to examine the roof. This argument with regard to increased danger of accidents with safety lamps from falls of roof has proved (as I stated was the case when I had the Cwmbran Arbitration in 1891) to be quite false—it is a wrong idea. The number of accidents from falls since the introduction of safety lamps you will find given in Appendix 4 of last year's report, but that only goes back to 1900, since my district was altered. You will find the number in the previous report for 1901 at p. 27, where it goes back to 1873, and it will be found from that that the number of safety lamps in use in the district in 1875 with 34,000 persons employed was 1,755. You will also see in the table the number of accidents from falls of roof, and that the number has practically continued the same, although now there are 24,460 lamps used with 51,000 persons employed; so that the number of accidents from falls has not increased notwithstanding the large increase of safety lamps, the large increase in the number of persons employed, the larger output, and the deeper and more difficult seams—the steam coal seams are more largely developed now, and the steam coal seams are supposed to have very much worse roofs than the upper seams.

526. To what extent would you make the use of safety lamps compulsory?—In all mines in which fire damp is met with.

527. Do you mean in all mines in which fire damp has ever been met with?—In which it has been met with from time to time.

528. Do you mean for the last six months, or the last year, or what?—I would not have them taken out; once safety lamps were introduced I would keep them in.

529. So that practically whenever you saw any trace of fire damp, whenever in a mine a cap was observed on a lamp, for ever afterwards you would have that mine treated as a mine in which safety lamps should be used?—You would be getting more than a cap in those mines, because it only occurs occasionally—the cap does not so much refer there. Small quantities of fire-damp would be generally explosive in those cases.

530. I do not quite understand you. Do you or do you not wish that a general rule should be adopted in any mine in which a cap has occurred on a safety

Digitized by Google

lamp—that you should always have safety lamps in future?—I would say where it was found in an explosive condition.

531. How would you define that?—A safety lamp would prove that; it is more than a cap; it is where it is indicated by an explosion in the lamp.

532. You must have explosion in the lamp, must you?—Yes, I should qualify what I have expressed. In Monmouthshire where the lamps have been principally introduced, the average number of fatal accidents from falls for seventeen years, from 1874 to 1890 inclusive, with less than two-thirds the number of persons, and less than a quarter of the number of safety lamps employed, was 23.35 per annum, as against 22.33 for the fifteen years from 1891 to 1905 inclusive; besides which the steam coal seams, with much more gas and worse roofs, are being two or three times more developed than they were before. I would emphasize that in addition to the reduction of falls there is the reduction in the number of explosions of gas.

533. Now we come to the question of the construction of these lamps. You object to screw locks, do you?—Yes.

534. I understand that screw locks have been nearly all abolished?—There were about 400 in my district at the end of last year out of 24,000.

535. You think those screw locks ought to be abolished?—Those are now, I think, done away with in my district. More than half of them were odd lamps which officials had.

536. Then practically there are no screw lock lamps?—Since then I have asked the officials to have them altered, and they have been altered. I do not suppose there would be at the present time 100. I look upon a screw lock as being an improper instrument to place in the hands of a workman; it places him in the position of being liable to three months' imprisonment, in some cases without fault on his own part.

537. How do you mean?—Because those lamps will work loose of their own accord during work.

538. You mean without the workman knowing anything about it?—Yes. At first I had some difficulty in getting their use discontinued; that is about fourteen years or fifteen years ago, or perhaps a little more, when I began. I tried to get it altered, and I had some difficulty with the managers of some of the companies, until on one occasion I went into a lamp cabin and asked the lampman in the presence of the manager if a lamp was ready to go out. I had already explained my views to the manager; the lamp-man said "Yes." I took the lamp in my hand and gave it a twist in this way (*describing*)—I had pretty strong hands at the time—and the lamp just moved, and once it moved there was no difficulty whatever in working it loose.

539. At all events you do not suggest that screw locks are practically in use in your district at all now, do you?—No.

540. With regard to testing safety lamps, have you any suggestions to make?—I advocate the adoption of the best safety lamps, and I think that any which can be shown to be unsatisfactory under reasonable conditions should be prohibited; but, although this may be thought to amount in some measure to standardising safety lamps, I would not go so far as to sanction any special safety lamp, nor would I limit the number of kinds of safety lamps, nor lay down any special test to be passed. I would leave the responsibility of choosing the lamps with the owners and managers, but would enable them to see any tests they wished, and leave them to make their own selection. I would provide an opportunity for them to test lamps if they liked.

541. But might not the very best lamp go wrong, and might it not be difficult to find out whether it had gone wrong or not, unless it was tested just before it was used?—I do not understand that to be the question.

542. I rather understood that was the point?—No, this is a question of standardising lamps.

543. It is whether a system of safety lamps should be established, as I take it?—I took it to be merely as to passing certain types of lamps.

544. Yes, I quite understand that, but another question is as to what tests should be applied to lamps just before they are used. Have you anything to say upon that?—May I go on to deal with the point first as to the types of lamps, in order to be consecutive?

Mr. J. S. Martin. 11 July 1906.

545. Certainly?—It should be open to an inspector, as at present, to object to a lamp—that is to say, a type of lamp—if he considers he has good grounds for doing so, and the lamp could then be put through some tests. If a permitted safety lamp standard is established, I look upon it that the last experience of the use of safety lamps would be worse than the first, and their use would be open to be abused, as is, I am afraid, what occurs at times with permitted explosives; that is to say, that a permitted explosive is said to be permitted, and is taken in general terms as being safe, and is used in places where it would not be used if it were not passed as a permitted explosive.

546. Your point is that permitted explosives may, under certain circumstances, becomes dangerous, and that that must be guarded against?—On the principle of being permitted there is the liability of people saying, "This is a permitted explosive, and I may use it where I would not use it if it were not a permitted explosive." I consider that is done in the case of permitted explosives, where the ventilation is not what it should be. I have not, as far as I remember, had any accident through defective forms of lamps. In regard to the list of explosions which I pointed out, they were all through naked lights, except in three cases. One of those occurred in a sinking pit, where fire-damp accumulated under the walling scaffold on which 12 men were working, and became ignited while safety lamps were alleged to have been the only lights in use; but no person was injured in this instance. I have my own doubt as to whether safety lamps were the only lights, but that was as far as we could get. Another case was due, apparently, to working in gas with safety lamps, where they should not have been working. The third was a non-fatal case, where the manager, with a clerk from the Cardiff office, who assumed the position of agent, together with a mason, were entering a drift at the surface of the Glyn Colliery in Pontypool, while the gas from this place was burning fiercely at the top of a 20 ft. chimney 20 yards distant. They tried to make their way down against this gas which was coming out; it was conducted to a chimney about 20 ft. high, and it was flaming there about 10 or 12 ft., and yet they tried to force their way in with brattice. However, there was no fatal accident in that case, but they got burnt within five yards of the mouth of the drift. In this latter case they could expect no other result, and they were fortunate in getting off so lightly. Whether the lamps lit the gas or the flame ran back through the flue may be a matter of doubt. My view is that no safety lamp is intended to provide safety if work is carried on in firedamp; it is only intended as a safeguard against the unexpected meeting with it from any cause, and then there should be immediate withdrawal. This fact not being appreciated is what, I fear, might result in greater risk than at present if a test were constituted for standardizing lamps. That is all I have to say on the question of the type of lamps.

547. Now will you go to Rule 16, with regard to the tests of a lamp being in working order. Have you anything to say on that point?—The principal practice in my district is the examination of the gauze. I do not know that I have very much to say upon it.

548. You think that rule covers what you think ought to be done. Then we come to the question of watering. Is there much watering in your district?—In my district the main roads and headings in some of the mines are watered to a greater or less extent, the headings, however, not very much. In some, watering is only done in a perfunctory manner with water tubs, which are not sufficient. I think it is desirable to make the watering of roadways compulsory where they are dry and dusty, and, where explosives are used, the working places also.

549. You would not carry it any further than that; you would not have any general system of watering by sprays, for instance, to a certain part of the mine?—That would be laying down how it was to be done. I cover nearly the whole of the mine in this case, the greater part of the mine. I am not prepared to say how it is to be done. In some cases sprays have been used; in some cases they put on pipes—they lay them on every 40 or 50 yards.

Digitized by Google

Mr. J. S. Martin.

11 July 1906.

550. However, you have not gone into that question very fully, I suppose?—Well, it is a question as to which is considered the best. I believe that they have gone away from the use of sprays now, more or less.

551. How much further does your suggestion carry us than the rules as to watering at present go?—Watering is not compulsory at present, except in the case of blasting.

552. In the case of blasting you must water within a certain distance of the shot?—Yes.

553. Do you say that in the case of dry and dusty roadways it ought to be made compulsory that such roadways should be watered?—Yes.

554. (*Mr. Ratcliffe Ellis.*) It is in General Rule 12, sub-clause (h)?—Then I cover that by the roads being watered, and if explosives are used in working places, those working places should be watered.

555. (*Chairman.*) Then the only addition you would make to that is that in dry and dusty roadways there should be watering?—Yes, and in working places also, if explosives are used.

556. That is so now; where explosives are used you must water for 20 yards. Do you suggest anything further?—That would be sufficient.

557. The shot shall not be fired "unless the place of firing and all contiguous accessible places within a radius of 20 yards therefrom are at the time of firing in a wet state from thorough watering or other treatment equivalent to watering in all parts where dust is lodged, whether roof, floor or sides." That is what you suggest yourself, and you have nothing to add to that as regards the firing of shots, and dry and dusty places?—That is in working places; whereas I advocate that the roadway should be watered all the way.

558. Yes, I quite understand your view that dry and dusty roadways should be thoroughly watered. What would be the expense of that, do you suppose; have you estimated at all what the extra expense would be?—My view is that excessive watering at once is likely to disturb the floor for a time, in some mines especially, but I think the general experience is that if properly applied in regular and not excessive quantities, it is not serious, and that it soon finds its level; that is to say, after a time it will cease to give the trouble that it may at first give. I think the objection on this score is magnified. In Germany, watering is carried out compulsorily, and although at first great objection was made to it on the same grounds, they find it quite practicable, notwithstanding floors in some of the seams being as bad as any in the South Wales coalfield.

559. I understand there are other matters you wish to mention in connection with watering, such as a system of wet zones?—First of all, in regard to the cost, I think that in some of the mines there will be no great extra cost attending its adoption, but I cannot speak with much knowledge on the subject.

560. Have you anything to say upon the subject of ankylostomiasis, as to whether in your opinion watering has the effect of spreading the disease?—I understand it is now alleged on the authority of Dr. Bruns, of Bochum, that watering does not spread ankylostomiasis.

561. Have you anything more to say about watering?—Wet zones, so far as my experience goes have a beneficial effect in the case of explosion, but they only operate in reducing the probable loss of life, and they do not prevent the accident in its initiative. Improved tubs or trams have their advantage in preventing the coal dust escaping on the roads on their way to the shafts. I have never seen the arrangement for watering full trams on the inbye flat. I understand, however, that it works well where excessive watering is not applied, and that it materially reduces the quantity of dust accumulating on the roads. In Germany they went very much further—they watered right into the faces and also the working faces, and they watered the full trams before they were sent out in some of the places.

562. You do not think that is necessary, or you do not suggest it, at any rate?—No, I do not suggest going as far as watering the face exactly. Then there is another question which is put with regard to the exhaustion of dust from the mine; as to that, I do not understand what is contemplated.

563. Is it not a suggestion of exhaustion of the dust by means of ventilation, or of sucking out the dust? However, you have no opinion with regard to it?—I do not understand what the question means or how it is to be applied.

564. I think Sir Clement Foster suggested that it should be in some way or other sucked out of the mine?—On the principle of the vacuum cleaner, I suppose. I am afraid I cannot support that.

565. Now we come to the question of ventilation. What do you say as to the first general rule on that point?—The first general rule is not sufficiently definite. Difficulties to some extent have arisen at one time, but the managers, I think, in my district now universally accept the view that for compliance with the rule there must be no cap of gas visible on the flame of the safety lamp in use by the collier on the air current in roadways or in working places. No person should be allowed to work in any place or along any roadway in which the air current shows a cap on the flame of the safety lamp, or in which fire damp is accumulated overhead or otherwise; nor should they be allowed to work near accumulations of gas except for the immediate purpose of removing it. I do not think that I have a manager in my district at present who would pledge his reputation to any other standard. I think the managers agree with me that a safety lamp burning best colza oil is a reasonable and a proper standard by which to judge the ventilation as regards firedamp. Some people who may be accustomed to different practices may contend that such a standard is impracticable, but I can say with confidence that I have as many fiery mines in my district as there are in most districts, and the standard is accepted and worked to. My experience in the Manchester district also was that it was worked to there during the thirteen years that I was an assistant. I consider this is a reasonable, practicable, and adequate standard of ventilation as regards firedamp as far as my experience carries me. To require a more delicate test or standard it appears to me would be "aping at the moon," and would be absurd until this standard has been attained. It is no use seeking more than is reasonably attainable, and this I am satisfied from my experience is so. Shot-firers might very properly be provided with a more sensitive lamp for testing with before firing shots. On the Continent I believe a specific percentage of gas is expressed—I think it is 1 per cent. that the air must not contain without the express sanction of the mining authorities; there are, I believe, samples of air taken quarterly, and they are analysed. I do not think this is satisfactory, as so much would depend upon where the sample was taken, and it is not capable of practical daily observation, especially by the workmen. My view is that the lamp which is given to the workmen must be the test that he should work by. If he is given a more sensitive lamp than the colza oil lamp, and it indicates fire damp as being present by a cap, he must be obliged to leave; but I think the colza oil is a fair standard oil for practical use. It might then be also inserted that if any question arose as to a cap being present a sample of the air might be taken and analysed, and the percentage decided in that way—which would correspond with what had been indicated by the cap on the lamp.

566. Then with regard to shot firing, what have you to say?—I think shot-firing might be much more extensively carried out between shifts than is the case at present, and that it should be compulsory in fiery and dry and dusty mines. I am not prepared to say that it should be so in all mines, but strict rules should be drawn up to provide for it. I think in most of my fiery mines at present shot-firing is already carried out between shifts.

567. As regards your district you think that any alteration of the rule would have very little effect?—Well, there are some cases where it would go a little further than is the practice, but I should like to see it compulsory, so that I would not have to be exercising the same amount of personal influence and personal pressure.

568. You would have it compulsory in all the mines in your district?—In the fiery mines; not in all, certainly not.

569. I do not know whether there is a standard definition of "fiery mine." I suppose you would be able to make a list of the mines that you consider fiery in your district?—Yes, for that purpose.

Digitized by Google

570. You would like to be able to prohibit shot-firing in those mines except when the men were away?—Yes, it is practicable, because it is carried out in some of the largest mines in my district.

571. In some of the largest mines in your district the shots are never fired when the men are down below?—Not when the ordinary shift is at work; it is done between shifts.

572. Then what have you to say with regard to miss-fire shots?—Except, perhaps, some amendment in the wording of the rules as to when a person is unramming a charge (on which I think a question was recently raised in Scotland) I do not see that anything further is required. The special rules in my district cover the point raised, as I understand it, that a man in unramming the stemming of a shot was held not to be unramming the shot. I think that was the point. But in my district the special rule prohibits that distinctly.

573. It prohibits what?—The removing of the stemming.

574. How do you mean? If the shot miss-fires, the stemming has to be removed at some time or another, I suppose?—The rule is that another shot must be fired beside it—that the first shot must not be unrammed at all.

575. That it must never be unrammed?—Yes.

576. That it must be blown out by another shot; is that what you mean?—That is the rule.

577. I understand now; a shot misses fire, and the ramming is in the hole; are you never to get that ramming out then?—No; it has to be blown off by another shot, or cut out.

578. Then you have no further suggestion to make?—No, except to provide for that.

579. As to the keeping of explosives by miners, what do you say?—I think it would be a good thing that the men should obtain—not necessarily buy, in all cases—their explosives from the mine-owner, and that they should obtain them in their cases or canisters each morning at a store near the mouth, but not on the pit-heap of the mine. I would not compel men to bring out such explosive as they have left over from what they took down for their day's work if the quantity did not exceed 3 lbs. or thereabouts; the quantity is a matter to be fixed. At present there are differences of opinion on the question, and it is thought by some that if they have half a pound, or a pound, or anything of that sort, left over after their day's work, they must bring their tin out with that explosive, and not leave it in the mine. With regard to such a quantity as that I would raise no objection, and in fact I do not raise any objection to it as I consider it safer than carrying it about.

580. Then you think the owners should be obliged to provide a proper store?—Yes, I think so. I think it is undesirable that men should have to bring home explosives to their residences.

581. Is there anything else you wish to say on the subject of buying explosives?—No. In my district the explosives I should think are, with regard to three-fourths of them, obtained from, or provided, by the coal-owners.

582. Now with regard to timbering, what have you to say about the special rules?—The special rules, as revised in my district, so as to include the timbering requirements laid down by the Home Office, have only been in force a year and a half. They appear to have been working in gradually, and the maximum distances fixed have been very considerably reduced, but are capable of still further improvement. At first, various managers were inclined to fix absurd distances, and in some cases did fix such as made the rules a farce. Fortunately the rules are so worded that the distances fixed must be reasonable, and, as I have said, I was able, by correspondence and personal influence, to get very material reductions made in the distances. The number of fatal accidents at the face in 1905 was 16, while in the first half of the year 1906 there have been 13, which does not show the same amount of improvement. From the table which I put in a few moments ago it will be seen that the number of deaths from falls of roof at the face has varied a good deal in the past, there being 16 last year, 31 in 1904 and in the previous years in order of sequence:—33, 16, 20, 20, 18, 12, 18, 19, 22, 19, 22, 19, 15, 22, 31, 22, The years 1903 and 1904 have been exceptionally heavy. I do not know the reason why. Then for the year 1905, since the rules have come into operation, they have been very much better—not more than half. But one cannot from the experience of a single year attribute the result only to the timbering rules.

583. Have you anything further to say about timbering?—Yes, a good deal. These matters must not, however, be judged by individual years; it is necessary to have averages of several years in order to be able to judge comparatively. The figures which are before you will show that to judge by single years would be entirely misleading. I think accidents at the face should be capable of reduction by more careful attention to timbering, and doing so according to some system which must assure that it always has to meet or provide against the dangers which are known to exist in respective seams, such as joints, smooths, slips, potholes, etc., whether seen or unseen; that is to say, that in working a seam which is known to have those dangers, they should be provided against as if they were expected. The failure at present is that timber is more or less set to provide against seen danger only, and then, when unexpectedly some other causes of danger (unseen, but to which the roof or the coal is known to be subject) set in, an accident or injury to someone is the result. I do not wish to lay down any specific or definite system of timbering, but I say that systematic timbering in rows with specific maximum distances apart, and such intermediate timbering as the officials or colliers consider is needed for special conditions of the roof, with either flats, or good, strong cap-pieces, two or three feet long, may meet the requirement; but I am inclined to the requirement being in the form that the manager must adopt some such system of securing the working places as will be reasonably likely to provide against the dangers which are known to exist, or which occur in the respective seams, seen or unseen, and leave him responsible for showing that he has done so in each case, and that he has provided such supervision as will prevent the likelihood of such precaution being omitted. The Courrières Company introduced a system to meet their high death-rate from falls, with considerable advantage. The Germans have done so at the Saar Collieries; that has been done since the Commission was held by the Germans on falls of roof and sides, one of the most eminent members of which Commission, Bergrath Behrens, I am sorry to say, died last week; the Germans have done so at the Saar Collieries, and also in some cases, at least, in Westphalia as an experiment and for comparison. I think our mining engineers and managers should be capable of developing systems to meet the circumstances existing in their own collieries. It is preferable that they should be encouraged and required to do so, rather than that a general system should be promulgated by the Government; but, of course, if they will not do so, it may become necessary for the Government to take steps in the matter. I refer to that point in my report for last year (page 13), and there state fully the views which I hold. In repairing roadways, etc., I fail to see what can be done, except that perhaps the old timbers might be pulled out by "gab-lock and chain," or other similar appliance, which will enable the workman to stand well back and in a place of safety. Individual judgment comes into play to such an extent at this work (and must do so from the nature of the work, which is dangerous work after the timber is drawn out) that there is little that can be done in the matter except to employ as experienced and careful men as possible, and even the most experienced and careful will get trapped sometimes. In regard to that work I do not see that there can be any regulations laid down; it is entirely a matter of judgment; a man takes out some timber to change it, the stone above it is loose or is otherwise, and how he is to get it down can only be a matter of judgment to be exercised by himself.

584. (*Mr Wm. Abraham.*) Do you draw any distinction between changing timber and drawing timber out altogether?—I am speaking of changing timber in roadways—repairing.

585. Then I understand it—not drawing out timber?—No, I am speaking of repairers. There is no question as to drawing out timber; I have not taken that question into consideration.

586. I thought you were speaking of drawing out?—No; I am speaking of drawing out timber in the roads.

Digitized by Google

Mr. J. S. Martin. 11 July 1906.

597. You mean repairing?—Yes, repairing.

598. (*Chairman.*) Then we come to the question of haulage. What has been the state of things in your district with regard to accidents from haulage?—There has been during the last two years a very bad record; you will see that also from the table which I have put in. There is a very bad record in my district under this heading, but with the exception of these last two years the number of accidents and deaths remain pretty constant since I have been in the district, notwithstanding the large increase in the number of persons employed, and the large increase in the output, which I think is about 50 per cent. more. I attribute the high death-rate in a great measure to the way in which the roads are driven and maintained. I think the number of accidents is capable of reduction by improvement in the haulage roads (whether for hand-putting, horse-haulage or engine-haulage) and I would suggest; (1) That a clear space of not less than 12 inches should be maintained between the side of any tram or load and the timbers or side of the road, and that at any point where spragging the wheels is required there should be two feet clear. (2) That haulage roads for hand-putting or horse-haulage should not be driven at a greater inclination, where possible, than three or four inches to the yard in any part beyond, say, five yards from the face, or some such inclination to be fixed as the maximum. (3) That gradients on hand-putting or horse-haulage roads should be made and maintained as regular as possible to avoid the necessity for hauliers passing backwards and forwards at the side of the trams for the purpose of spragging, and putting their backs against the front of trams going round curves. (4) That the roadways should be better made and generally maintained in better order to prevent trams or tubs getting off the rails so frequently, and the danger of knocking out timber in consequence, and horses having to jerk so much owing to the condition of the roads between the rails. (5) That hauliers should not be allowed to be in front of and put their backs against trams when going round curves (that is a practice which is followed with the large trams in the South Wales coalfield, in order to help the tram round a short curve). (6) That waste or old timber or rubbish should be kept away from the sides of the roads as much as possible. (7) That there should be two feet, or such other distance as might be fixed upon, clear on the floor outside the rails on engine planes. (8) That proper provision should be made for the safety of a journey-rider when accompanying a journey on an engine plane, or none should be allowed.

599. (*Mr. F. L. Davis.*) What do you mean when you say that proper provision should be made for the safety of the journey-rider?—He ought to have a tram or something. At present he stands on the couplings or he sits on the end of the rope, and the jerk is liable to throw him off. He gets blocked between the trams and he has no specific place for riding with any security.

600. No coachman's seat?—No seat or tram or trolley. The trolley, of course, would have to be a pretty heavy one, so as to prevent the loaded tram jerking it off the road.

601. (*Chairman.*) Have you anything to say with regard to the examination of boilers?—I think provision should be made for a three-monthly examination of every boiler by a competent person.

602. You think it should be a three-monthly examination?—Yes, I think that is about the practice in collieries.

603. Like the practice under the Factory Act?—The Factory Act is every fourteen months, but that examination must be made by an engineer.

604. Yes, it is once in every fourteen months; you suggest once in every three months in the case of collieries?—I should have it once in every three months, and I think that is the practice at collieries, as a rule. I am not particular to a month or so, but I think the examination ought to be made oftener than it is under the Factory Act. I also think that a report should be entered in a book to be kept at the mine, as at present, as to the condition in which the boiler was found, and before being put to work again the safety valves should be set, according to calculation, for the pressure at which the boiler is fit to work. At the same time I wish to express my satisfaction that during twenty years there have been only two or three cases of boiler explosions at collieries in my district, and that no fatality that I can remember or any very serious injury has resulted from any of those cases. I do not think there was a single fatality. That is with regard to collieries; the results at the metalliferous mines have not been quite as satisfactory, but a very great improvement has occurred among them within the last fifteen years.

605. Then as regards shaft accidents and over-winding?—The number of winding accidents is wonderfully small when all the circumstances are considered. I consider the managers exercise admirable discretion in the selection of winding enginemen, and I do not think it is advisable to relieve the managers of their responsibility in the matter or to restrict them in the area of selection by requiring persons for this work to hold certificates of competency, as it seems more likely to do harm than good. I cannot express my admiration too strongly for the winding-men at collieries. I think they are a most excellent set of men, and the way in which they carry on their duties cannot but earn admiration from anybody who has realised it. Considering the number of men that they let down and bring up every day, the number of accidents that have occurred through their fault is practically a minimum.

606. Have you anything to say with regard to safety catches?—I am undecided as to whether it is desirable to enforce the requirement of end-doors or bars on cages when men are riding. I may say that when I was in Germany, that is thirty-three or thirty-four years ago, the collieries I was at were, I think, the only ones which were allowed to wind men without having safety catches, and without having doors on the ends of their cages, and I think they are still required to have them. I have known of a case in my district in which if doors had been on the cage a number of men would probably have been killed; they had got on the cage and something fell down the shaft; they heard the noise and all jumped out and escaped, whereas if they had had doors on they could not have got clear. I do not strongly favour the use of safety catches on cages even in shafts in which wooden guides are used and fitted in a manner suited for them, but I cannot say that I am opposed to them.

607. You have not any decided opinion?—I have not. In Part 2 of the General Report for 1902 I gave the figures from the Continental coalfields. I do not know whether your secretary has placed before you the result of the Continental practices or not; the figures are contained in the general report mentioned.

608. The only information we have about it is that Mr. Delevingne quoted you, Mr. Martin, the inspector of the Southern district, as having given special attention to the subject of safety catches?—About four years ago there was information obtained from the Consuls abroad, and I included that information in my report for the year, but it was afterwards thought better to put it in the general report. I am unfavourable to the use of safety catches in the case of wire guides until I have had experience of the results from experiments under conditions as nearly approaching to those existing in shaft work as possible. I do not feel satisfied that the guide ropes would not give way if the weight came suddenly upon them, and that the result would not be more disastrous than without them. I have not had experience of the effect of their coming into action upon wire rope guides, and I am not prepared to express an opinion. I cannot satisfy myself that they would not be liable to give way at the top if the weight came suddenly upon them. I advocate safety detaching hooks being required at collieries where they are suitable or should be suitable. Some very small places would not require them. Provision should be made for their being taken off, cleaned, and thoroughly overhauled at least every three months.

609. What statement have you to make with regard to re-capping winding ropes?—My special rules provide for that being done once in every six months, I think it is.

610. Do you think that is sufficient?—I tried to get a special rule providing that it should be done every three months, but I could not.

611. You would prefer it every three months?—I would prefer it more frequently than every six months, but I am quite satisfied with six months from my present experience.

Digitized by Google

602. Now as to surface sidings?—These leave much to be desired, more especially as to width between the lines and at the loading places between the rails and uprights for carrying the staging, etc.—of course, I do not say in all cases, but speaking generally. It should be specified that nothing should be left on the ground or piled within 4 or 4½ ft. of the rails, and that the surface should be maintained level and free from impediments, whether rubbish or otherwise. Indeed, a compulsory requirement that the surface arrangements, including machinery, etc., at mines, should be laid out with a view to orderliness, and that this and cleanliness should be maintained, would be an advantage from the point of view of safety as well as otherwise. I have made reference to this frequently in my annual reports. My experience of mines generally—in the south, at any rate—is that the manner in which surface arrangements are kept, when compared with the Continental mines (more especially with the Westphalian and Ruhr coalfields) is unsatisfactory, and does not show to the advantage of this country; it must be more or less demoralising to those employed. I believe I see an improvement in my district during the last eight or ten years, but still there is much room for further improvement.

603. Now with regard to special rules and their mode of establishment?—The mode of establishment is not satisfactory. It is far too cumbersome, and, as arbitration is both expensive and uncertain in effect, some other system is desirable. I think the substance of the present special rules might very well be embodied in the Act as general rules, and that it might be left for special rules to deal merely with the details of administration, and any fresh points which may arise subsequent to the passing of the Act. There are a great many of the special rules which are at present in principle practically general throughout the country, and there is no reason why they should be referred to as special rules when they might be embodied in the Act. The present special rules cover such large areas, and meet such a variety of conditions, that practically universality is feasible except for details of administration and division of duties amongst those employed in their respective positions. I think a Board might be appointed, which should discuss matters and advise the Secretary of State, and he should, upon the responsibility of such Board, be empowered to issue special rules, just as is done in Germany, for example. The constitution of the Board would need careful consideration, and would depend upon what arrangements are decided upon for the future. There are only two codes of special rules in my district, and I think the consolidation of them should be effected without much difficulty. The differences are very slight, and were due to two or three individuals who raised difficulties all along the line, and with whom individually I would have contested the points, but for the others interested being so loyal to them that they threatened to break off the whole negotiations if the points were not conceded, and, rather than do so, I gave way in the negotiations. If you will refer to my report for the year 1904 (Appendix 5), you will see there are only a few rules where there is any difference. The differences are shown in italics. Before 1887, when I came into the district, there were at least six or seven different codes in the district, and after the Act of that year, when I suggested the consolidation of the codes, I was laughed at, and only as a personal favour did some enter upon the negotiations to try whether it was possible or not. Those negotiations resulted practically in what I desired. We arrived at the same code with less than half a dozen differences in the three codes—that is to say, one code for Monmouthshire, one for the Forest of Dean, and another for Bristol and Somerset. In 1904 we reduced these to two codes—that is to say, a code for Monmouthshire and the Forest of Dean as one code, and a code for Bristol and Somersetshire as the other; the Forest of Dean people fell in with Monmouthshire. I feel sure that, as such an amalgamation has proved practicable, it would be quite possible to arrive at one on a larger scale in the way I mention—that is to say, by the inclusion of the substance of most of the present special rules in a code of general rules.

604. That is all you have to say about your codes of special rules. Then with regard to the investigation into mines accidents, as to any other inquiry than coroners' inquests, what have you to say?—I do not think it is at all necessary that an inquiry under Section 45 should be held in every case. The result of the inquest should be a guide as to whether a further inquiry should be held or not. I do not think it would be a good thing in some cases. The coroners' inquiries are in some cases most satisfactory, while in others they are not so satisfactory. It usually depends upon the temperament of the coroner, and the views he takes of the object of his inquiry. In late years I have not found any difficulties, but there was a time when coroners brought up an inspector rather short if he was making inquiries.

605. (*Mr. Wm. Abraham.*) Is that since you removed from one district to another?—Since I have been an inspector.

606. Is it since you removed from one district to another?—Well, it is some years ago since I removed.

607. (*Chairman.*) At all events you are now fairly satisfied with the coroner's inquiry?—Yes, I am fairly satisfied, on the whole.

608. But you think it is just as well that occasionally there should be a further inquiry?—Sometimes. I am thankful to say that in my district I have not had any big inquiries for some time.

609. You think that, as a rule, now all the causes of the accidents are properly investigated, and so far as possible the blame is placed upon the right people?—Yes, fairly so. Some give inspectors wide latitude and ample time, while others act differently. In the case of large explosions the coroners generally give much more latitude than for ordinary cases of accidents, and in most instances I have found their inquiries satisfactory. Then there is a question put as to Home Office representation, which is raised, I think.

610. Yes?—I personally have no objection to the practice of the Home Office being represented by Counsel, and in almost all cases it has been a pleasure to me to work with them, and to give them every assistance possible in the cases where they have attended. In addition, I have at inquiries exercised the legal right myself of supplementing any questions that I thought necessary.

611. Do you think the Home Office are usually represented in all cases in which they ought to be represented?—Yes, in my district. Of course, I speak for my own district.

612. (*Mr. Smillie.*) You mean in cases where the Home Office is represented by someone in addition to the inspector?—Yes.

613. You say that is done in all cases where it is necessary?—In my district—I cannot speak for others.

614. (*Chairman.*) Then what have you to say with regard to rescue work and ambulance work, General Rule 34?—Ambulance work has been in operation in a few instances in connection with collieries in my district for some years. Early last year I issued a circular to the managers and firms requesting that they would take the matter up and get classes started at their collieries, or, where the collieries are too small, combined classes—with satisfactory results. I have also started an ambulance league for the district with a view to creating emulation among the various classes and centres. A shield is to be obtained and competed for annually, with permanent recognitions for the members of the successful teams—on the same principle practically as is carried out in Durham by Mr. Bain, the inspector of that district. I hope to see not only each manager the holder of a certificate, but each under-official. Some managers have gone so far as to say that they will require it of their under-officials. I certainly favour each candidate for a certificated manager, under-manager, or overman, being required to be the holder of an ambulance certificate.

615. With regard to rescue corps, have you a rescue corps in your district?—There has not yet been any experience at the mines in my district with regard to the formation of rescue brigades or corps. The matter, however, is being considered by the Mining Education Board under the Brecon, Carmarthen, Glamorgan, and Monmouth County Councils. It is a question whether this is the proper authority. I should say certainly not; unless the county councils propose establishing centres to be maintained by them in similar efficiency to the London, Cardiff, or other fire brigades.

Rescue

616. Do you know anything about the use of breathing apparatus—pneumataphors?—No, nothing that I wish to put forward.

Digitized by Google

Mr. J. S. Martin.

11 July 1906.

617. Have you anything to say about ankylostomiasis? Are there any cases of ankylostomiasis?—Only the outbreak in Cornwall has come under my notice and personal observation. Sanitary special rules have been established with a view to the prevention of the pollution of the mines. These rules are in operation, and are being complied with more or less. I believe there has been an improvement in the condition of the mines, and also in the health of the men, but in order to give an opinion on this latter point a medical examination would be necessary, and then even there would be no actual basis of comparison. It is desirable to stop, or, at any rate, lessen the pollution of the mines by requiring the provision of sanitary conveniences and their use. I believe so far back as the time of Mr. Macworth, some forty or fifty years ago, it was proposed to him in some of his reports. On the Continent it is carried out, and it was carried out thirty-five years ago when I was there managing a mine. This, however, will be no light task in this country with the present day ideas and discipline, and without the co-operation of the miners it would be futile to attempt it. Much of this could best be obtained if the men's leaders would take the matter up and refer to it in their addresses at meetings of the men. Indeed, I consider there could be a greater saving of life from various causes if the men were cautioned, and the reasons explained to them in this way, than by Government inspection. It would bring the men to view the rules in a proper light, and cause them to think for themselves and others. There is not now the same practice of defending men in cases of contraventions of rules that there used to be in my district. The leaders have given the men to understand that unless they can show strong reasons why they should be supported in the case of a prosecution they will not be supported from the miners' funds.

618. Now I should like to have your views on the Examination Board in your district?—A change is most certainly desirable in the present system of examination for managers' and under-managers' certificates of competency. Under the Coal Mines Regulation Act I consider there should be only one Board of Examiners, and that the standard of examination for managers' certificates should be considerably higher and more scientific. I think that three years' actual practical experience in and about a mine, with at least three days a week of eight hours underground, should be retained. The standard of examination for under, or, as I should call them, assistant managers' certificates, should be quite equal to the present standard for managers', and perhaps a knowledge of electricity should be included; such certificates should render a man eligible to take entire control in collieries employing up to some figure, say 60, subject to the approval of the inspectors or mining authorities; but in the case of large collieries he should only act under the supervision of a manager. I would also suggest an overman's certificate upon a standard of the present under-managers', which, while required in larger mines under a manager or under-manager, I would make available without a manager or assistant manager for mines employing less than 20 persons, subject to the inspector's or the mining authority's approval, and I would make it compulsory for an overman to hold such a certificate. I would suggest that a practical knowledge of fiery mines should be compulsory, as the certificates are available at such mines. In my district they do not require a practical knowledge of fiery mines from candidates coming from Somerset.

619. (*Mr. Ratcliffe Ellis.*) Do you mean practical experience?—Yes, experience or knowledge.

620. They ask questions upon it?—Yes.

621. (*Chairman.*) They must know something theoretically about fiery mines?—The examination is always the same.

622. The examination is the same, but practical experience is necessary in some cases and not in others?—Yes.

(*Mr. Ratcliffe Ellis.*) It is necessary in every case; you must have a certain practical experience.

(*Chairman.*) But not necessarily a practical experience in fiery mines.

623. (*Mr. Ratcliffe Ellis.*) I understand your suggestion is that if a person is to have a certificate to authorise him to manage a fiery mine, he must have had practical experience in a fiery mine?—At present there is no difference between them. I say that every man should be obliged to have practical experience in fiery mines before qualifying as a candidate for a manager's certificate.

624. (*Mr. F. L. Davis.*) You mean it should be essential when he sits for his examination?—Yes.

625. (*Mr. Smillie.*) That is to say, to enable him to hold a certificate at all?—To sit as a candidate; because once he gets the certificate he is authorised under the statute to take charge of the most fiery mine in the kingdom.

626. He may have had experience of fiery mines?—I am going on the same ground as heretofore; inasmuch as when once he gets that certificate, of which there is only one class, he is allowed by the statute to take charge of any fiery mine in the kingdom.

627. (*Chairman.*) Yes, but then that is another question as to whether there might not be different certificates for fiery mines and non-fiery mines?—I have not gone into that. It is quite open to consider that point; but a man very often would lose his position in a very short time, because the mine from being a non-fiery mine may become a fiery mine, when his certificate would not be available.

628. In your district must the candidate get a certain number of marks altogether?—He must qualify in each subject.

629. In some districts he can get a certain number of marks as a total, but I do not understand it is so in your district?—I got that condition altered after I came into the district. Formerly they used to take it that the candidate might know little or nothing of one subject and obtain a lot of marks in another subject; I thought that was not satisfactory, and I got them to alter it. I do not think a fireman's or an examiner's certificate is necessary, and I would leave the responsibility of their appointment to the manager and assistant manager, subject to their being over 25 and having had not less than five years' general experience underground and being able to read and write.

630. (*Mr. Ratcliffe Ellis.*) That is a second-class certificate which you are speaking of now?—No; a fireman's certificate.

631. A second-class certificate under the Act?—No. I say they need have no certificate.

632. (*Mr. Smillie.*) You are not in favour of the firemen having a certificate?—I would require the overman to have the present under-manager's certificate.

633. (*Mr. Ratcliffe Ellis.*) But under the Act there is a first-class certificate and a second-class certificate?—I think not in the case of a fireman.

634. There is nothing in the Act that requires a fireman to have a certificate now?—No, but the question is asked whether I am in favour of the firemen being required to have a certificate.

635. (*Mr. Smillie.*) You are opposing the idea that it should be necessary for the fireman to have it?—I do not know whether it is in the statement which is before you or not, but there is a very strong question raised as to whether everybody ought not to have certificates, in fact.

636. I do not think it goes beyond the fireman?—I do not think a fireman's certificate is requisite.

637. And you do not think it is absolutely necessary he should have experience in a fiery mine?—No, not in the case of some mines.

638. You leave it entirely to the manager's responsibility?—Yes, entirely. But he must have five years' general experience underground—not merely coal-getting, because very often it is put forward that a fireman must be a collier who has been getting coal for so many years; but that really is the last occupation that fits him for the post of fireman.

639. (*Chairman.*) Have you anything more to say on the question of certificates?—I would require any person having the standing position of the consulting engineer for a mine, as he is now termed, to be the holder of a manager's certificate, and that he should be responsible as an agent. I also suggest that any person having and exercising authority over a manager at a mine (that is to say, manager, assistant manager, or overman, as the case might be), whether as owner, chairman or other director, or agent, should be responsible as an owner or an agent, and should not be entitled to throw the

Digitized by Google

responsibility upon the manager, unless it can be clearly shown that the manager had a free hand on behalf of the owner in the matter at fault.

640. Now we come to the point of certificates for managers of metalliferous mines. Do you think that managers or assistant managers and captains of metalliferous mines should be required to hold certificates?—Yes, I favour managers, assistant managers, and captains of metalliferous mines being required to hold certificates, to be obtained in a similar manner to those under the Coal Mines Regulation Act. The standards should not be so high at first, and the number of persons employed at the mine at which the respective certificates should be available should be less, say 40 and 15, instead of 60 and 20. If this provision should be enacted, it appears to me that respective certificates of service would have to be issued to persons engaged in the respective positions of manager, assistant manager, and captain at the time of the passing of the Act within whatever number of years may be fixed upon previously, as was done in the case of the Coal Mines Regulation Act of 1872, and also that students who have, at the time of the passing of the Act, qualified in the full course of the Royal School of Mines and the Camborne and Redruth Mining Schools (holding their first-class certificate), and who can show satisfactorily that they have been engaged for three years within the previous six or seven years in and about mines employing the respective number of men underground, as in the cases of men in the positions referred to, should be granted (foreign experience to count, as so few opportunities occur at home) corresponding certificates.

641. (*Mr Ratcliffe Ellis.*) Do you mean by that that the diploma should take off two years or three years from the five years' practical experience; that is to say, that if they get a diploma at Camborne, or some school, that would count as a part of their technical experience?—No. I suggest that the holder of a diploma or first-class certificate of above schools with three years' experience should be granted a certificate as manager, although not actually engaged in a position as such at a mine at the time of the passing of the Act.

642. But now, under the Coal Mines Regulation Act, if a person gets a diploma, then he has only to have three years' experience out of the five?—Yes.

643. And you would make it the same with regard to metalliferous mines?—Yes, after the Act is in operation.

644. That is to say, it may be five years' experience, or a diploma and two years' experience?—Yes, but in the case of the Camborne diploma they have to have a year's experience during the course. The reason I specify these cases is because they are the only purely metalliferous schools; all the others have the opportunity of going in for colliery certificates, but these men have not, because they are ineligible. You see that these men after their diploma could not claim two years on a coal mine certificate, because they would not have experience in coal mines. As these students are debarred from sitting under the Coal Mines Regulation Act, and are exceptional as metalliferous mining students, they would appear, with the three years' experienced mentioned, to be qualified for this class of certificate, to be granted at the time of passing the Act, and may fairly be considered in this manner. The interchange of certificates with the Colonies should be a matter of agreement in each case, subject to a knowledge of the legal requirements in the working of mines in the respective countries, which might be ascertained by a certificate of an inspector after an examination; that is to say, in some of the Colonies the certificates and the examination—the requirements for the certificate—are practically the same as they are at home, as, for example, New South Wales; their Act is framed practically upon our Act, and their examinations are practically the same. With regard to other Colonies it may or may not be so, and therefore it ought to be a matter of arrangement as between the Governments as to whether their examination is a sufficient qualification or not.

645. (*Mr. Smillie.*) With the addition of legal knowledge?—Of the practice as to special rules, and so on.

646. (*Mr. Ratcliffe Ellis.*) Just in the same way as the Home Secretary has now to nominate the colleges from which a diploma is to be accepted, he could mention the particular Colonies abroad as to which the diploma would be accepted here?—Yes.

647. (*Chairman.*) Have you finished what you have to say about certificates?—Yes.

Mr. J. S. Martin.

11 July 1906.

648. Now you wish to say something about plans?—Yes. I would strongly urge that surveyors should be required to hold a certificate of qualification, and that it should be the result of an examination of no superficial character. At present surveyors at collieries are for the most part pupils who have learned the use of dials and perhaps the theodolite, and who pose as surveyors; they are paid a wage or a salary which can have little temptation for a qualified man who has had an education of such a thoroughly efficient standard as to fit him for such work. The consequence is that it is not looked upon or followed as a profession, but rather as a stop-gap by a young man while waiting for something better to turn up. I certainly think I am within the mark if I say that there are not 5 per cent. of our surveyors who could pass the German surveyors' examination.

649. (*Mr. Smillie.*) Do you refer to the surveyors in your district only?—Throughout the kingdom; I think I am well within the mark when I say that.

650. (*Mr. Wm. Abraham.*) The knowledge and experience of surveyors are taken into account as having worked in and about mines?—Their education and qualification is such that I do not think 5 per cent. of them would pass the examination that a German surveyor is required to pass. I am speaking now of what I found was the case when I was abroad. I do not know what the present-day requirement is.

651. (*Mr. Ratcliffe Ellis.*) Are the duties of the German surveyors who pass the examination which you refer to the same? Do they only perform the same duties as the surveyors you refer to at the collieries in this country?—I think practically so. They are all sworn surveyors as to keeping their plans accurate, and they are paid according to a tax, or at least they used to be paid so—I cannot speak as to the present day. It is a matter which you will follow up further perhaps as to what the present practice is.

652. Do you mean the surveyors whom we have underground for the lessors or the persons who lay out the workings, or what surveyors do you refer to?—The surveyors who make the Government plans out there. There are three copies made of the plans in Germany. One is supplied to the inspector of the district, one is supplied to the colliery, and the surveyor himself, I think, keeps another copy which he plots upon, and he fills up the others every three months.

653. Then it is the working plans that you refer to which are filled up and kept in the colliery offices?—Yes. They may have their own surveyors in addition.

654. But do you think that the surveyors who make up those plans now are not competent men?—A very large number of them are not in this country, in my opinion.

655. (*Mr. F. L. Davis.*) Is the surveyor of the landlord not a competent man—because I do not think in the whole history of our company we have had any dispute between our landlord and ourselves with regard to plotting?—I think in regard to a large number the practice is for the surveyors to accept the plans of the collieries. The result is that at a large number of the mines the plans are not satisfactory, and are not made up and maintained as they should be. I think that in many cases the manner in which the plans are made and laid down on great huge sheets of drawing-paper is a mistake. The paper shrinks, and becomes broken, dirty, and ragged, so that actual measurements are in some cases practically impossible.

656. (*Chairman.*) I suppose all that has come within your experience? Yes. There is room for experience of foreign example in this subject, which is becoming more and more important as older mines shut down and become sources of danger to those adjoining. I think that the question of plans is not merely a question as between colliery owners and landlords, but I hold it to be a very important national question with regard to the loss of mineral which will take place as the mines become abandoned and others are working towards them, because, inasmuch as the plans cannot be trusted, there will have to be very large barriers left in order to provide safety, and that will be lost coal to the nation.

657. (*Mr. Wm. Abraham.*) Is it not important also to prevent loss of life?—Yes, of course; that is what I say, but I say not only with regard to that.

Digitized by Google

Mr. J. S. Martin. 11 July 1906.

658. (*Chairman.*) Then you say that the mine agent or manager very often does not comply with section 34 of the Coal Mines Regulation Act because he does not keep an accurate plan?—I say that a good many of the plans are not accurate, and that they have been proved not to be accurate.

(*Mr. Ratcliffe Ellis.*) Clause 3 of that Section says what shall happen if he does not keep an accurate plan.

659. (*Chairman.*) That he is liable to a penalty?—Yes; but where is the provision for checking it?

660. At all events, if it is found to be inaccurate he may be fined?—Yes. I have had a case where an owner has been fined for having an inaccurate plan. I have had cases of inundation where an inaccurate plan has been used.

661. It is very important with regard to inundation that accurate plans should be prepared?—Yes. I would suggest that the Government should provide surveyors who should from time to time visit a district and make a check survey of parts of mines indicated by the inspector, in order to see with what accuracy the survey has been carried out by the owner's surveyor.

662. (*Mr. F. L. Davis.*) Merely to check them all?—Not to check them all, but to make an occasional check. I would also suggest that the plans of abandoned or suspended seams should be sent to the Home Office within two months of abandonment or suspension, or at any time when the inspector may require it, without limit, because at the present time, once an inspector gives notice or draws attention, even by a letter addressed to the owner, that a plan is due, three months or six months after that he cannot claim it if he has not got it within that time—he loses control. If an owner pleads for a little more time in order to prepare the plan, and an inspector gives way upon the point, if the owner likes to break faith he can snap his fingers in the inspector's face, and say: "I am not bound to send it." Such plans should consist of a section showing the surface and the section of the ground, seams, etc., to the lowest depth worked in the mine; also a copy or tracing of the working plan, if not the plan itself. There should, in addition, be a copy of the plan sent on the 25-inch Ordnance scale. It would be a very valuable additional requirement. I think the owners of mineral property should be required to have plans showing the workings of their property, at least with the roads to or from the shaft, marked on them. The question to my mind is a national one, as the loss of coal is growing, and will continue to do so as mines are abandoned and fill in with water. The barriers which will have to be left in consequence of not having reliable plans for the safety of those working will be enormous waste and loss to the country, which it cannot afford. With regard to the question of boring, I consider that General Rule 13 requires altering, and reading as it did in the 1872 Act. The words, "at any point within 40 yards," make the rule very unsatisfactory. The manager considers that he is justified in approaching old workings standing full of water to a distance of 40 yards before commencing to bore, although in most cases the plans showing such workings are admittedly not reliable, but are the only guide at his disposal.

663. (*Mr. Ratcliffe Ellis.*) Then what alteration do you suggest in that rule?—In the 1872 Act the wording was "when approaching old workings." There was no specification as to 40 yards.

664. (*Mr. Wm. Abraham.*) Do you consider that the change in the wording of that rule has weakened it?—Yes. A manager says he is not within 40 yards, and consequently need not bore—you must know that he is within 40 yards of the old workings before he can be required to bore.

665. It was framed with the opposite intention?—Yes. That completes my evidence-in-chief.

FOURTH DAY.

Thursday, 12*th July* 1906.

PRESENT:

LORD MONKSWELL (*Chairman*).
WM. ABRAHAM, Esq., M.P. (Rhondda).
F. L. DAVIS, Esq.
ENOCH EDWARDS, Esq., M.P.
THOMAS RATCLIFFE ELLIS, Esq.
JOHN SCOTT HALDANE, Esq., F.R.S.

S. W. HARRIS, Esq. (*Secretary*).

MR. JOSEPH SAMUEL MARTIN re-called and further examined.

Mr. J. S. Martin. 12 July 1906.

666. (*Chairman.*) There is one question which has been suggested to me, namely, can you tell the Commission what proportion of clerical work is correspondence, and how much time is taken up by the collection of statistics?—I could not give you an answer to that question.

667. Do you think it would be any appreciable relief if the duty of the collection of statistics were transferred to the Mineral Statistics Department of the Home Office? Would that release you very considerably?—Personally, it would not, because my secretary does a great portion of that work, and then I simply look over it afterwards.

668. What would be your feeling in the matter? Would you rather put forward your own statistics in your own way, or would you rather leave it to the Home Office?—The statistics are put forward in the way that is required by the Home Office. There is an advantage in going through the statistics one's self. One gets a better idea of the district by doing so.

669. Therefore, on the whole, you would be inclined to say that you prefer that the present system should be continued?—Yes, with regard to the gathering of the statistics. As to the tabulating of them afterwards in various Blue Books, I should not mind whether it was done at the Home Office or whether it was not. But, as I say, it is practically done, in my case, by my secretary, and not by my assistants.

670. You would like to have the personal supervision of the collection of statistics in your district?—Yes, of the collection.

671. And you would not wish that supervision to be exercised for you by the Home Office? You would rather do it yourself?—I think so; but I am not particularly strong on the point. Of course, I am speaking of where sufficient clerical assistance is provided.

Digitized by Google

672. There are other questions which I may perhaps ask you if they are not dealt with in the meantime by other Commissioners, but I think it is quite likely that other Commissioners will bring out your evidence upon those points better than I could?—There are one or two points which I should rather like to emphasise, in case I did not do so sufficiently yesterday. I wish to make it clear that I advocate the use of the best safety lamps, although I do not go in for a standard, and also the safest permitted explosive, in addition to the highest practicable standard of ventilation. I do not consider that either safety lamps of the best description, or the safest permitted explosive, should be used otherwise than as a precaution in the event of anything unforeseen or unexpected occurring to the ventilation. Safety lamps, in my opinion, are only allowable for testing for gas, or for persons working in gas immediately engaged in the removal of such gas—not for ordinary work in any shape or form. Permitted explosives are in the same way, in my opinion, only justifiable under conditions where watering has been properly carried out in dry and dusty places, and when there is no cap on the flame of a fairly sensitive safety lamp in any part of the air current, and when no firedamp has accumulated in the ventilating district. Permitted explosives, like the safety lamp, are only intended as an extra precaution. An explosive, being a permitted explosive, is not intended to be used except when it is clearly safe that it should be used.

673. I do not quite follow you with regard to the use of safety lamps. First of all, your position, as I understand it, is that safety lamps ought only to be used in certain classes of temporary work, and that they ought not to be used in the ordinary coal-mining?—They ought not to be used in any case in which firedamp is present.

674. You mean that workmen ought not to go on working when there is a cap on the safety lamp?—Yes; it is merely as a safeguard against the unexpected happening. The men go into a place which is perfectly in order, but such things as an outburst of gas may occur, and then the safety lamp is there as a safeguard. Then the miner should withdraw as soon as it is noticed. I am speaking against the abuse of the safety lamp in working in firedamp.

674*. (*Mr. Wm. Abraham.*) Do you mean that safety lamps should not be necessary except in certain cases, so as to make certain that there is danger?—To make certain if unexpected danger occurs.

675. In your opinion the air current should be sufficient to work without safety lamps, generally speaking?—If it could be always guaranteed to remain in that condition.

676. The lamp is used more as a precaution?—Entirely. If you have gas accumulating you are bound to have safety lamps in order to allow of working to remove it.

677. Would you be in favour of a large number of coalmines being worked without safety lamps at all?—Oh, no, on the contrary.

678. (*Chairman.*) Then I confess I do not quite understand your position as regards safety lamps. So far as I understand, you have already stated yesterday that the workmen should be immediately withdrawn when there is any cap on the safety lamp?—I wish to emphasise that.

679. That I understand. But there may be a great many mines where it is extremely unlikely that there would ever be a cap on a safety lamp, or any indication of firedamp, and yet it is so possible that it would be undesirable to allow those mines to be worked, as I understand it, by naked lights?—Yes.

With regard to the question of my assistants attending inquests, about which you asked a question yesterday, they each attend the inquests upon the cases which they have investigated; if they have investigated a fatal accident, they attend that inquest. They do very little office work for me beyond their own reports of inspection and reports on accidents referred to them; and those reports on accidents are more in the shape of notes at the back of the form or the letter on which a report is made than formal reports. Then when they find any irregularity they draft a letter for my signature, and send it to me. That is the extent of the office work, with comparatively few exceptions. Their time, for the most part, is free for inspections, inquests, and such work.

Mr. J. S. Martin.
12 July 1906.

With regard to the number of prosecutions, that is no guide as to the work of obtaining compliance with the Acts and rules. In the first place when any irregularity is met with a letter is written to the owners asking what explanation they have to offer with regard to it. If the reply is satisfactory the papers are put away, and if not, further correspondence follows. Then comes in the question afterwards as to whether proceedings should be taken or not.

With regard to plans, I do not wish it to be understood that there are not exceptions to the statement which I made yesterday, and perhaps a large number of exceptions; but still I hold that they are not complete and satisfactory. For example, managers of sometimes moderate education, who have obtained certificates, frequently undertake the keeping of the plans, and represent themselves as competent on the strength of their having obtained a certificate, the examination for which contains a very elementary requirement on the question of surveying. They sometimes term themselves mining engineers, when they might, in some cases, be better described as "overmen." Mining engineers of high standing undertake to keep up plans. Very frequently the pupils are sent out to make up their plans and to do the surveying. That is not satisfactory, in my opinion. The work of a mining surveyor should, in my opinion, be a profession by itself, and made worth while being followed as such. The German system is the most complete that I know of.

680. Can you state what the German system is?—I am not prepared to give you sufficient details of it. I merely bring it forward for your information, and perhaps for the purpose of your obtaining further information upon the subject in the future from other sources; but it is certainly worth your consideration. I think that is all I wish specially to emphasise. Yesterday I was unable to answer your question with regard to the number of inspections. In 1903 my assistants made 416 underground inspections.

681. That is to say, your two assistants?—Yes. In 1904 they made 451; in 1905, 473. I have not the figure of the number of inspections which I made myself in 1903. In 1904 I made 93; in 1905, 112. I referred yesterday also to the question of fines other than prosecution being imposed by apologies; I have obtained by post copies of two of such documents which perhaps you might like to see. (*Witness handed in two posters.*)*

682. Those are posted up at the works?—Yes.

683. Have the inspections by your assistants been fairly constant in number during the last 10 years?—I have only taken them out for three years. Yes, they are practically constant; they would be more and less—that is the answer.

684. We will have the apology posters printed?—If they are being printed I suggest that the names should be omitted.

685. (*Mr. Ratcliffe Ellis.*) With reference to inspections without going down the mine, you can see, I suppose, on the surface the report books which describe the condition of the mine on previous days?—Yes, in most cases.

686. You said that you thought the inspection under Rule 38 by persons employed operated for good?—Yes, I think so. 38

687. In what way?—It satisfies the men for themselves as to the condition of the mine.

688. Do you receive copies of those reports, or are they left at the mine?—They are left at the mine, as a rule. There is a requirement in case of anything very serious being wrong, that they should send on a copy of it. I have not received many of them.

689. You have seen a great many of those reports?—I have seen a number.

690. What are they like; what do they say generally?—They give very detailed reports as to the condition and the finding of gas and the finding as to roads and timbering—want of timber in places, if such arises. They make remarks on those subjects.

691. It is not a question of merely saying that it is found all right?—Some of them are very detailed.

(*Chairman.*) Perhaps we might have a few specimens put in.

* Appendix XII.

Digitized by Google

Mr. J. S. Martin.

12 July 1906.

(*Mr. Ratcliffe Ellis.*) I should like to have some specimens.

692. (*Chairman.*) Would you send up a few?—I will get some copies from some of the collieries, and have them forwarded to you. †

693. (*Mr. Ratcliffe Ellis.*) You would not propose to extend the power of inspection to persons other than those employed at the mine?—The Act does so at present.

694. Have you the Act before you?—I have not. I think it says "any practical man."

695. Rule 38 is this: "The persons employed in a mine may from time to time appoint two of their number or any two persons, not being mining engineers, who are practical working miners, to inspect the mine at their own cost"?—Yes.

696. Do you read that to mean that they may select others than persons of their own number?—Certainly?

697. Is that the practice?—No, not in my district—I do not think it is done in my district.

(*Mr. Enoch Edwards.*) That has been done in other districts.

(*Mr. Ratcliffe Ellis.*) Is it the general practice?

(*Mr. Enoch Edwards.*) I should not like to say it is the general practice, but it has been done—that is to say, a firm has had six or eight pits, and one man has been selected. He has not examined his own pit, but he has examined other pits.

698. (*Mr. Ratcliffe Ellis.*) In your district, so far as you know, these inspections have been usually confined to persons employed at the mine?—That is so, as far as I am aware.

699. I understood you to say that you would make this inspection by workmen compulsory?—I would make it compulsory once a year.

700. But how would you do that?—By putting it in the Act.

701. But even that would not make it compulsory, would it?—Yes, I think so.

702. You suggest that the men shall examine. Now, who would you fine for not doing so?—Well, there is a chairman of committee at a very large number of them.

703. Mr. Abraham, for instance. Would he be fined for not making the inspection? I only want to see how you would carry out this compulsory power?—The carrying out of it would have to be considered. I am not prepared to set forth exactly how it would be done. There might be a way found of doing so, I have no doubt.

704. Do you really want anything more than there is now in Rule 38. You see, they may inspect at their own cost, and the persons so appointed shall be allowed once at least every month to inspect. I do not understand you to suggest more frequent inspections than once a month?—Not unless there has been something found seriously wrong.

705. By whom?—By the examiners under the rule. Then if the men or the representatives of the men afterwards wish to have a further examination to see that whatever they found wrong had been remedied, I would give them the right of doing so the second time—if the men required it.

706. I want to quite understand what your suggested amendment is. Supposing the workmen made an inspection, and they find everything right, then do you want anything further than the rule at present?—No.

707. Supposing they have some complaint to make, then you would allow another inspection within the month?—If they have found something seriously wrong.

708. Of course, you get into a question of degree there. But if they found, to take your own words, anything seriously wrong, then there must be a general meeting called. Is that your idea?—Yes, to enable them to require a second examination that month.

709. Who are to be called to that meeting?—It should be a meeting of the men.

710. The men at the particular colliery?—Yes.

711. No others?—No.

712. And if the men at the particular colliery pass a resolution, then their own representatives should be entitled to make another inspection?—Yes.

713. That would be your view of amending this rule?—That would be in order to satisfy the men themselves that the defects had been remedied.

714. Subject to that, you have no suggestions to make by way of an amendment to Rule 38?—No, I think that would be sufficient. Except, as I said, that I should like to see an examination made once a year at least for the satisfaction of the men themselves.

715. Well, they have the power to do it every month?—Yes, I know.

716. And you would like to make it compulsory, but you cannot suggest any way in which you could carry that out?—Not at present at all events.

717. Now with regard to inspection under General Rule 4, I think you said that you desire some amendment of the provisions of this rule, and I think you said that you thought the inspection should be made within two hours of the commencement of the shifts?—Yes, about that. At present it is 2½ hours in some cases. I think the firemen's districts might be reduced in size with advantage.

718. But with reference to the inspections of the districts, you thought they ought to be made within two hours of the commencement of the shifts?—About that.

719. And you thought further that the man who made such inspection should be the person who was in charge of the shift?—The person who was going to be in charge of the shift, so that he might know from his own inspection the condition of his district when entering upon his duties.

720. At what time do the men go down the pit in your district?—Generally from half-past five to seven o'clock.

721. And what time do they come up?—That depends. From three to four o'clock—perhaps five o'clock. I could not tell you exactly.

722. That is seven hours per shift, is it not?—It is more. It is from nine to ten hours.

723. So that the official would have to be on duty during these nine hours, and also two hours before that—at least. Is that not so?—He would have to be, but I do not know that he need stay till the end of the shift.

724. I thought he was to be in charge?—Well, he would be in charge for his shift which he was going to take on.

725. Would you propose that he should come out at the end of the shift?—That would be a matter of arrangement. In some cases there are eight-hour shifts worked.

726. I was going to ask you as to that. How would this work out at eight hours from bank to bank?—I have not got to deal with that question at present.

727. But still that would make it impossible for your suggestion to apply with a limit of eight hours from bank to bank?—Of course, if that was compulsory he could not do ten hours.

728. You think it is desirable from your point of view that the man should be the same man?—Yes. I think it is desirable that the man who is going to commence the shift and take charge of the shift should be acquainted personally with the condition of his district when he was letting the men go in.

729. You think that during the shift there should be two inspections at least?—I think there ought to be two.

730. Of what extent?—Of the district throughout.

731. Every working place?—Yes, every working place.

732. And all the roadways?—Yes. I think it would do no harm, and I think that it would be desirable.

733. At present, although there may not be two inspections reported, do you think it is unlikely that the man in charge is not at least twice during the shift in the different places in the mine?—Yes, in some cases he is.

734. And in some cases probably more than twice?—And in some cases he may be in some of the places several times; but in many cases in the smaller

† Appendix XIII.

Digitized by Google

collieries they do not pretend to go through twice—they would not allow it to be put into the special rules.

735. But why should there be a difference in the smaller collieries? I should have thought that in a smaller colliery there would be more opportunity for frequent inspection?—I mean smaller collieries in regard to output perhaps, and yet still large in area—with thinner seams. It would require more officials, it is considered.

736. Do you mind telling the Commission exactly the alteration which you would suggest to Rule 4?—I should insert "at least two." I am not prepared on the spur of the moment to put in the words. I have not prepared them.

737. I do not want the exact words, but I want to know in what respect you suggest it should be altered. I will read the rule to you: "As to inspection before commencing work:—A competent person or competent persons appointed by the owner, agent, or manager for the purpose, not being contractors for getting minerals in the mine, shall, within such time immediately before the commencement of each shift as shall be fixed by special rules made under this Act, inspect every part of the mine situate beyond the station or each of the stations, and in which workmen are to work or pass during that shift, and shall ascertain the condition thereof so far as the presence of gas, ventilation, roof, and sides, and general safety are concerned?"—I should alter it so that the person entering upon the shift should make that inspection.

738. That is to say, the person who has charge of the shift?—Who would be coming on—in charge of the shift.

739. Do you think that would be an improvement?—I do.

740. What is wanted, of course, is sufficient and efficient inspection?—Yes.

741. Does it matter who makes it?—In my opinion it does.

742. You see it is before the men go to their work, in order that the condition may be seen to be safe before they go there. Is it material whether that examination is made by the man who has charge of the shift or by someone else?—I think it is, because I think it is desirable that the man who is letting the men go to their work should be acquainted personally with the condition of his district, instead of his depending upon the report of someone else.

743. But if there is any part of the district in which there is gas, the men are not allowed to go to their work?—He is depending then upon another person's report that that gas exists there—he does not know it himself.

744. But the place is fenced off?—It should be.

745. Well, I assume that they carry out the rules. However, in your opinion, it ought to be the same man?—I do not know what the case is now, but it used to be the practice in the north of England. It is the practice that I was accustomed to myself.

746. I do not say that it is not good. I am only asking for information, so that the Commission may form an opinion upon it?—I am only pointing out that it has been in use and in practice.

747. Have you any other suggestion of alteration to make with regard to this rule?—Further, that there should be not less than two inspections during the shift.

748. That is during the shift, but I am speaking now, for the moment, of before the men go to their work. You say it ought to be two hours?—I am not particular to the exact time. It is in my district 2½ hours, but if the districts are reduced, I think they would be able to get it through in 2.

749. Then you would not suggest altering this rule by putting in any time?—I think that the special rule might very well be made general there.

750. Quite so. Then all the suggestion you make upon that is that it should be the same man. Is there any other suggestion you have to make as to the inspection before the men go to work?—I think the rule is sufficient.

751. The next point is as to the inspection during shifts. That is the second part of the rule: "A similar inspection shall be made in the course of each shift of all parts of the mine in which workmen are to work or pass during that shift, but it shall not be necessary to record a report of the same in a book. Provided that in the cases of a mine worked continuously throughout the twenty-four hours by a succession of shifts, the report of one of such inspections shall be recorded in manner above required." Do you make any suggestion with reference to that?—I should make it not less than two inspections.

752. Do you think that desirable?—Yes.

753. I will suggest to you a difficulty. You propose not less than two?—Yes.

754. Might not that lead under-managers to consider that two were sufficient in all circumstances?—I do not think so, if the under-manager is not inclined to shirk his work—which I do not give them credit for.

755. You must remember that there is an over-riding responsibility upon the management to see that the places are safe, and this is only a means of securing it?—That is so.

756. Remembering that there is that over-riding responsibility, is it advisable to provide in detail too much as to how it should be secured?—I do not think that that is going too much into detail. Possibly some places may require it three, four, or five times. But that is only a general requirement.

757. Your suggestion is that it ought to be made at least twice during a shift?—Yes. I would further suggest that the person examining for the following shift should make his report. I do not think that one report in the morning is sufficient for the subsequent examiners who come on in following shifts.

758. Do you mean during the shift?—No—the one who makes the examination for the shift coming on.

759. I do not quite follow you. What I want to know is this. We have it that the man must make an examination before the men go to work—that is, the man who must see the shift through, and that man must make two examinations during the shift?—Yes, generally.

760. That is your view?—Yes, but there has to be an examination made again within two hours or two and a half hours before the next shift goes on.

761. I am treating the two shifts differently?—But that in this case is treated as if it were one shift. I would treat them as two shifts with regard to their report.

762. You would treat them as two shifts; that is to say, that in place of the concluding paragraph of this second sub-section of the rule—"Provided that in the case of a mine worked continuously throughout the twenty-four hours by a succession of shifts, the report of one of such inspections shall be recorded in manner above required"—you would have a report for each shift?—Yes.

763. Could you indicate the size that the district should be to enable that to be done?—That varies very much.

764. But that would have to be determined upon?—The manager would have to decide that.

765. You would give him the right to decide it?—Certainly, as at present. I do not at all wish to interfere with the manager's right or responsibility further than it is already dealt with. If an inspector considered it too large, he would have the power of taking steps under the Act to have it reduced if it were a source of danger.

766. You would have to put something into the Act to enable you to do that, would you not?—I do not think so; I think the Act is sufficient on the point.

767. It is very satisfactory to find that it is sufficient for some purposes, at any rate. Now, with reference to the responsibility of the owner, I gather you do not think that that is sufficient at present?—I think there are some cases which have been decided in which it is said that if the owners appoint managers they have done all that is required to be done; but I say that in some cases managers are simply made catspaws of, and that they have not free hands, and therefore their appointment ought not to free the owners or agents.

768. Taking your own experience, have you had any cases in which you think that the owner has escaped responsibility when he ought to have been made respon-

Digitized by Google

Mr. J. S. Martin.

12 July 1906.

sible?—I have; but I cannot remember any case for the moment.

769. Would it be possible to get the information?—I do not think I could.

770. Is it a long time ago?—It is some years ago. I could not tell you exactly when it was—I do not generally make any further notes than a note merely of what the result has been.

771. In your experience, which has been a very long one, is it only one case of that kind that you have had?—I refer to a decided case in which it was held that the owner was not responsible.

772. I take it generally that your opinion upon that point is not based on your own experience, but upon such decided cases?—Yes, in a large measure, inasmuch as I know that certain managers have not got free hands.

773. Well, it is a matter of opinion?—No, it is a matter of fact.

774. Section 50, under which this arises, and with which you are no doubt familiar, puts upon the owner, agent, and manager of the mine the responsibility for non-compliance with the Act by any person about the mine?—Yes.

775. They are primarily responsible for everybody else?—That is apparently so.

776. That is the first part of the section, but it goes on to say that the owner, agent, or manager shall be relieved from responsibility "if he proves that he had taken all reasonable means, by publishing, and to the best of his power enforcing, the said rules as regulations for the working of the mine, to prevent such contravention or non-compliance"?—Yes.

777. Your view is that there has been some decision which says that the mere fact of appointing a certificated manager is sufficient to relieve the owner from conviction, because it is supposed that by doing that he has taken all reasonable means, by publishing, and to the best of his power enforcing, the rules?—I believe that is what it represents, or what, at all events, is in the minds of some of the justices.

778. If that is not so, then your view would not be that the owner was not sufficiently liable at present?—It is in the view of some of the justices that if the owner appoints a manager he has done all that is reasonable.

779. Then what you want is a special rule to regulate the justices apparently?—I would make it an Act, not a special rule.

780. That would hardly form part of the Mines Act, would it?—I think so. It is required to be made clear.

781. Yes; but it is to direct the justices what they have to do?—I think the Act tells them that—that when they find so-and-so they have to do so-and-so.

782. Would you not leave the justices or the judges, or whoever has to deal with the matter, to come to the conclusion in each case upon its merits as to whether the owner should be or should not be responsible? He has to prove that he has taken all reasonable means before he is freed from responsibility?—Quite so, but I hold that he has to prove more than that he has appointed a manager. If he can prove that he has appointed a manager, and can prove that that manager has a free hand, then I should be satisfied.

783. But there is nothing in the rule which says that that shall relieve him. Just consider for a moment in what way you would suggest the alteration of Section 50?—I am afraid I am not prepared to do so.

784. All that you want to say is that the mere fact of the owner appointing a manager should not *ipso facto* relieve him from responsibility?—Yes.

785. There is nothing in the rules which says that that shall not be so?—I should say, further, that the manager should have the entire controlling power if the owner or agent is to be relieved of responsibility. But he should not be so relieved by the mere fact of his having appointed a manager; he must also show either that he has taken satisfactory and definite steps to enforce the Act and special rules or that the manager is of a suitable standing, and has a free hand in expenditure and managing the mine.

786. Now, with reference to the use of safety lamps, what do you understand by a fiery mine?—If you would put it in another way—"safety-lamp mine"; I should say all mines in which firedamp has been found.

787. I have no doubt you are familiar with the Explosives Order of the 20th December, 1902, which was made by the Home Office under the provisions of the Act of 1896. It provides by the first clause: "In all coal mines in which inflammable gas has been found within the previous three months in such quantity as to be indicative of danger"—does that, in your view, describe what in your mind is a fiery mine?—No, I go beyond that.

788. Then what is your description of a fiery mine?—A mine in which firedamp has been found.

789. Do you mean ever found?—Practically; in such a mine I should put in safety lamps.

790. In a mine in which it has ever been found?—Well, practically.

791. What do you mean by "practically"? Supposing it was 12 years before?—Well, 12 years is a long time.

792. Say 12 months?—I am not prepared to specify a short time, because firedamp may be met with and not recorded, or not heard of.

793. That is a question of evidence, but this is an indication of what the Home Office understand to be a fiery mine, I suppose?—Yes. My views do not necessarily run actually in accord with what has been put forward in that way. That would be a minimum view of it—in order to meet the views, as far as possible, of objectors.

794. In that case in any coal mine wherever inflammable gas has been found within the previous three months, all that you want would have been done?—No, it does not go as far as that. The introduction of safety lamps does not depend upon that.

795. I think it does, and I am going to show you why?—I shall be very glad if you will.

796. First of all, in that case "the use of any explosive, other than a permitted explosive, as hereinafter defined, is absolutely prohibited in the seam or seams in which the gas has been found. (2) In all coalmines which are not naturally wet throughout, the use of any explosive, other than a permitted explosive, as hereinafter defined, is absolutely prohibited in all roads, and in every dry and dusty part of the mine." You agree to that. First of all, dry and dusty mines have to be watered, and only the permitted explosive is to be used. It is within the power of the Home Office—tell me if I am not right—to prescribe the conditions under which these high explosives shall be used. Is not that so?—Yes.

797. They say only permitted explosives?—I am speaking of safety lamps.

798. I will come to safety lamps in a moment. They say in that case that only a permitted explosive is to be used?—Yes.

799. Is it not the fact that that permitted explosive can only be used subject to such conditions as may be prescribed by the Home Office for the use of it?—Yes, that is so.

800. Why should they not prescribe that it should only be used where there are safety lamps?—Because they would then use it where safety lamps are not.

801. But you cannot. Wherever you find gas within three months only a permitted explosive is to be used, and that can only be used on such conditions as may be prescribed by the Home Office, and they may prescribe that it shall not be used unless safety lamps are used?—Well, under those circumstances I think the Act might include that requirement. It would do no harm to have that put into the Act and made a little bit clearer and less roundabout.

802. I think it is pretty clear as it is now. Would you mind looking at General Rule 12 of the Act of 1887. Can you suggest anything more that is necessary than is provided for there?—That is, as to the use of explosives?

803. Yes?—I think the practice as to the use of explosives under the Explosives Order and the 12th General Rule might be considerably simplified if brought together.

804. Do you mind telling me, in the first place, whether you think that is sufficient? You say you think the men ought to be brought out of the mine. If you look at the rule you will see that is provided

Digitized by Google

for?—Please do not misunderstand me. I do not mean to say that they should be brought out of a mine in which firedamp is only found within three months to a small extent—I do not go as far as that—but that in some of the gaseous mines, and in some of what might be termed the more fiery mines, or really fiery mines, they ought to be.

805. Can you suggest any addition that you would make to the present provisions under the Explosives Order and under General Rule 12?—I do not know exactly how I should make it. It would require considerable consideration as to how that should be dealt with. I have in some of the mines obtained a concession that the explosives should be used in parts of the mine only between shifts, but in another portion of the same mine I have not been able to get so far with the matter—it is a case of drip, drip, drip, and I am still acting on that principle, and I hope to get it by degrees.

806. But that is provided for under this General Rule 12, is it not? "(h) If the place where a shot is to be fired is dry and dusty, then the shot shall not be fired, unless one of the following conditions is observed; that is to say: (1) unless the place of firing and all contiguous accessible places within a radius of twenty yards therefrom are at the time of firing in a wet state," and so on. "(2) In the case of places in which watering would injure the roof or floor, unless the explosive is so used with water or other contrivance as to prevent it from inflaming gas or dust, or is of such a nature that it cannot inflame gas or dust," and so on; and then, "If such dry and dusty place is part of a main haulage road, or is a place contiguous thereto, and showing dust adhering to the roof and sides, no shot shall be fired there unless: (1) Both the conditions mentioned in Sub-head (h) have been observed; or (2) unless such one of the conditions mentioned in Sub-head (h) as may be applicable to the particular place has been observed, and moreover all workmen have been removed from the seam in which the shot is to be fired, and from all seams communicating with the shaft on the same level, except the men engaged in firing the shot"?—There are certain mines in regard to which I should extend the prohibition of firing to the same extent as is there provided with regard to the dusty road. That is my view, and that prohibition does not exist in regard to the working places absolutely.

807. You say that the provision here which is made as to dry and dusty mines should be extended to a certain class of other mines?—Yes.

808. What other class?—Where there is a good deal of gas given off.

809. What do you mean by "a good deal"?—We will say, speaking more particularly and in general terms in my district, into the steam coal seams.

810. Is not that really a question which you, after all, must leave to the discretion of the management, whether the men should be withdrawn or not?—No, I do not think that in those cases I should leave it to them.

811. Perhaps you can suggest a definition of the sort of mine to which you would extend that provision, and which would generally apply?—I do not know about the definition. I think it would have to be judged upon the individual cases.

812. By whom?—I do not know. It is difficult to say straight off.

813. I would suggest to you, by the man who is responsible if anything goes wrong for the loss of his property, and, of course, answerable very seriously if there is any mishap to anyone else?—In some cases, yes; but in other cases that is not, in my opinion, sufficient.

814. I am only suggesting that to you. You are in doubt as to who should decide?—In the first instance it should be the manager, undoubtedly.

815. Then what do you mean by "in the first instance," because it is done then, is it not—the men are brought out and it is accomplished?—It is accomplished if he does it.

816. Then if he has to decide in the first instance he has to decide whether to bring them out or not. Can you suggest that it could be left with anybody except the management?—Then the management ought to have some stricter rule—something more definite.

817. Would you increase the fine?—No, I do not look to fines—that is not at all my desire. *Mr. J. S. Martin.* 12 July 1906.

818. He is liable to be sent to prison if he does not carry out the provisions of the Act?—I believe he is liable in that case.

819. I know he is liable. You agree with me, I think, that it must be the manager who must do it, and you cannot suggest anybody else?—Then it wants a definition of some description.

820. Of what?—The class of mine in which that should be carried out.

821. But that you cannot deal with?—I am not prepared to do so on the spur of the moment.

822. I will put it to you whether or not the difficulty is so great in regard to a matter of definition of that sort that the only course you can take is to leave it in all cases to the manager?—He should have something to guide his judgment—something to guide his judgment is desirable, in my opinion.

823. You cannot suggest any practical way out of it?—I cannot at present; but I think it would be possible to frame a rule prohibiting the firing of shots where a cap appeared on the flame of a safety lamp or there was a certain percentage of firedamp in the air current until the indication of firedamp had disappeared, and then only with the minimum number of persons allowed by General Rule 12. ✓

824. Now with reference to safety lamps: your idea is that there should be some public testing of those lamps, so that the coalowners might know which was a safe lamp and which was a doubtful lamp?—I think it would be desirable to have a testing station which could be used if wanted, but I certainly would not have it for more than merely to allow a manager to bring a lamp and see it tested.

825. Quite so. Is there anything to prevent the Home Office doing that now without any further Act of Parliament, or further special rules, or anything further than they have already?—No, I do not suppose there is.

(*Mr. Wm. Abraham.*) But, in the absence of the point being mentioned in the Act of Parliament, is there any evidence of its being done?

826. (*Mr. Ratcliffe Ellis.*) I am sure I do not know. The Home Office test explosives and other things at Woolwich; whether they have the machinery for testing safety lamps I do not know. But there is nothing now to prevent them assisting the coalowners by making official tests?—I do not say official tests; I would not put them as official tests; I would simply put them as tests that the management could satisfy themselves by, and if an inspector wished to test a lamp he could test it also.

827. But you would not have such tests set up by the makers of the lamps?—I do not care by whom the test is set up, so long as it is a proper station.

828. That would not be very much use, would it?—The fact of the testing station belonging to anybody would not make any difference so long as the arrangement was all right. I do not specify who is to do it.

(*Mr. Wm. Abraham.*) Is there any special reason why the maker of the lamp would not have the best possible tester of lamps?

829. (*Mr. Ratcliffe Ellis.*) I suggest that he might have a test which would make his own lamp all right?—The arrangement, of course, would have to be a satisfactory one.

(*Mr. Wm. Abraham.*) It is possible, then, that men will study their own interests, and not only consider that which they are supposed to do as their duty.

830. (*Mr. Ratcliffe Ellis.*) It might be so. Do you mind looking at General Rule 8 with reference to safety lamps: "No lamp or light other than a locked safety lamp shall be allowed or used (a) in any place in a mine in which there is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous, or (b) in any working approaching near a place in which there is likely to be an accumulation of inflammable gas." You see that provides that only a locked safety lamp is to be used where there is likely to be any such inflammable gas or in any working approaching or near in which there is likely to be inflammable gas, so that the safety lamp is to be used where there is gas. Under General Rule 7 (the preceding rule) the examination must be by locked safety

Digitized by Google

Mr. J. S. Martin.

12 July 1906.

lamp, and the men must be withdrawn where there is this gas; and where there is likely to be gas a locked safety lamp must be used. Then Rule 9 provides: "Wherever safety lamps are used they shall be so constructed that they may be safely carried against the air current ordinarily pevailing in that part of the mine in which the lamps are for the time being in use, even though such current should be inflammable." Do you require anything more in regard to safety lamps than what is provided for by Rule 9?—Except that a manager should have an opportunity of testing one lamp against another.

831. But I want to know whether the result is not satisfactory?—Personally I have had no case, so far as I remember, in which the lamps have broken down, or the type of lamp, except in the case of Davy lamps.

832. I want a little more than that; I want you to tell me whether the description of safety lamp which is to be used as defined by Rule 9 is not sufficient?—Yes, the description of it is quite sufficient, in my opinion.

833. And if you get a lamp to carry out that, that is all you require?—As I have said to-day, I advocate the best. If there are two lamps, and one will comply with that requirement, and there is another which will comply with a good deal more, I should advocate the one which will comply with a good deal more.

834. That is for the management to decide, is it not?—Yes, I agree. I leave it with the management, but I give them the opportunity of satisfying themselves to that effect.

835. Well, they have that now. With reference to safety lamps, you do not suggest that there should be any further definition of the character of the lamp than is contained in Rule 9?—I do not think so.

836. The next point is as to the examination of the lamps. Upon that may I ask you this: Do you not think that there is more danger from a lamp being not in good repair, and from its not being clean, probably, than from not being properly constructed?—As a rule, I should think it is the greater danger of the two, except in regard to Davy lamps.

837. But that is not a lamp which complies with Rule 9?—You are quite right; in most cases it does not.

838. I am assuming that you have a lamp which complies with Rule 9. Now, Rule 10 (1) is: "A competent person appointed by the owner, agent, or manager for the purpose shall, either at the surface or at the appointed lamp station, examine every safety lamp immediately before it is taken into the workings for use, and ascertain it to be in safe working order and securely locked; and such lamps shall not be used until they have been so examined and found in safe working order and securely locked." Do you suggest that there is anything more wanted than that—to keep the lamps in repair and clean? Is there any other obligation that you suggest?—Personally I raise no point upon that.

839. I do not understand that you suggest that anything more is wanted with reference to safety lamps than is already provided (that is to say, as to the construction and taking care of them) in the existing regulations?—I have not myself proposed anything of the kind, but perhaps a jet of compressed air for proving the glass joints might be provided with advantage.

840. You do not think anything further is necessary than that?—If anything better can be provided, then I should say adopt it.

841. Yes; but still the manager would have a right to adopt it, and it could not be better than is provided for by Rule 9?—That is all I say—that if anything better comes to the knowledge of the manager, then he should adopt it.

842. When you say that you would exclude the use of naked lights from mines under certain conditions, do you mean that they should not be used down below at all?—I should do away with them all, except perhaps close to the bottom of the pit.

843. I was going to ask you about the bottom of the pit?—In some mines at the bottom of the pit it is not objectionable, in others it would be.

844. But you see a regulation must be definite. Then you would not advocate in any case that safety lamps should be used down below everywhere, and that there should be no light except a safety lamp?—In some pits, yes.

845. At the pit bottom?—Yes, even at the pit bottom in some cases.

846. What sort of a pit would that be?—I think I have some pits where that is the case.

847. That is very exceptional, is it not?—It is exceptional, but nowadays electricity comes in.

848. In Lancashire there is a rule that where the lamps are required, still there may be naked lights within 200 yards from the pit bottom?—I would not put in a rule of that kind.

849. That would have to be left to the manager, would it?—I think so.

850. I agree with you?—But at the same time I am against naked lights being taken down the pit more than can be possibly helped in what you may call very fiery mines.

851. Yes, I suppose everybody would agree with that?—That is so in regard to one matter, at all events—namely, for the sake of discipline. Then, again, when we speak of the pit bottom we must bear in mind the difference between a downcast and an upcast.

852. Yes, of course. You have had a good deal of discussion in South Wales in your district with reference to the introduction of safety lamps?—Yes, I have been hammering at it for a long time.

853. From whom do you find that the objection comes?—Owners.

854. Always?—Oh, from both sides very often. That was so in the Manchester district for many years, and it is so in my district. The Clifton Hall explosion, in Lancashire, arose from the difficulty of getting both owners and workmen to agree to adopt safety lamps.

855. You find that objection comes from both sides?—Both sides. I had an arbitration upon the subject in 1891 in the case of the Cwmbran Colliery, which cost, I believe, £1,500 a-side, or something like that, in which the evidence went to show that the men were strongly against it, that there was no necessity for it, and that if safety lamps were put in men would be killed every day. I gained the point, and since then lamps went in in thousands.

856. (*Chairman.*) I suppose you mean that it was said there would be falls of roof, owing to not having sufficient light?—Yes; that case proved the fallacy of it. And again, as regards the amount of work done, it was alleged then that the men could not do nearly so much work. For the first six weeks after that colliery went on with safety lamps there was a considerable falling off in the output in consequence of the men not being accustomed to the use of safety lamps, and losing lights; it gradually improved, and in six weeks' time they had the largest output that the colliery had ever had.

857. (*Mr. Wm. Abraham.*) So that the less light they had the more work they could do?—The lesser light did not prevent them doing the work; that is the way in which I put it.

858. (*Mr. Ratcliffe Ellis.*) It is not the owners only who have some hesitation with regard to the matter; it is both sides?—After various explosions with loss of life from 160 down to a very much smaller number, the men said that they were prepared to go on again with naked lights. That was stated by them at the inquest in my presence; so that there is a prejudice against the use of safety lamps, and in my opinion it is an unjust prejudice.

859. With regard to safety lamps, you suggested that if you had a sort of official certificate that a particular class of safety lamp was safe, it might be a dangerous thing to have, because people might rely upon that and neglect taking other precautions which ought to be taken with the presence of gas?—I put that forward as being possible or liable to occur.

860. That is as a possible danger. Does not that rather show that your opinion is that anything which lessens the responsibility of the management to look after the safety, because they think it is otherwise provided for, is not conducive to discipline, and is not conducive to safety?—My idea is to leave as much as possible the responsibility with the management, and with the management above and below the manager.

Digitized by Google

861. And not to fetter him by embarrassing rules and regulations?—A certain amount of rules for his guidance, I think, are desirable in order to introduce, perhaps, further care, but that does not lessen his responsibility, because he has to carry out that and more besides—that is merely defining a minimum.

862. Taking the case of a fireman, one of the subordinate officials, if he is directed to do certain things in too much detail, is there not a danger of his thinking that if he does those things he has done enough, and that he need not trouble himself about doing anything more?—Well, in colliery work a man has to exercise judgment, because difficulties arise at the moment, and he must use judgment.

863. I remember your own illustration about the lamp?—I knew you were going to bring that question up.

864. I only want your view upon it. I agree entirely with you that it is so. Take the Timbering Rules, if you do not like the lamp illustration, where a man had to put up such timbering as he might consider necessary to keep him safe, he has to exercise his judgment as to where timber should be; but if you direct him that it must be put in certain places, is there not a tendency on the part of that man to think that when he has put it there, whether it is wanted there or not, or whether it is wanted anywhere else or not, he has done what he is ordered to do, and he has done enough?—If there is sufficient and intelligent supervision, which I wish provided for, he will soon have that idea removed from his mind.

865. I ask you, first of all, whether there is not that danger in the working as to the question of timbering; the supervision we will discuss in a moment. There is that danger?—There is a liability to that getting into some of their minds, but to meet certain emergencies it is necessary to take additional precautions, because there are hidden or unseen dangers which the man does not provide for if he is only going to set up the timber according to his own judgment.

866. But where you have told him to set it, I think you must agree with me that there is a disposition—a danger, or a liability, as you put it—on his part not to think whether it is necessary, but to think that he has done all that he has to do, when he has done what he is told; and I think you will agree with me that there is that danger, because you said that he must be looked after, and there must be supervision?—The rule must also be, "And such further timber as he considers necessary."

867. You want to alter that rule, because you want to guard against the danger which the too elaborate specification of what he has to do may bring about?—Yes, but it wants qualifying in that way, as is done in No. 83 of my Special Rules.

868. Is there not exactly that danger with reference to the officials of the mine as we have been suggesting with regard to the collier: if you detail too much as to how he is to do things, do you not lessen the chance of getting that man's judgment as to whether he can do it in any better way or not?—I do not at all desire to detail too much. I simply desire to detail on general points.

869. Then would your views be met with regard to that if you added to the General Rules such general matters as experience has shown might be applicable generally, and left the Special Rules as they are. When I say "as they are," I mean as being details of the way in which the Act and General Rules are to be carried out?—I think I said that I would put a good deal which is at present in the Special Rules into the General Rules, and retain the Special Rules as much as possible for detailing the carrying of them out, but even the special rules might be made fairly uniform, different terms in use in the district being used.

870. With reference to watering, you say that you would not undertake the responsibility of saying how it was to be done, and that it must be done by the management?—As a matter of convenience, and as a matter of efficiency and expense.

871. Do you want anything more with reference to watering than is already provided for in the Act and in the Explosives Order?—Yes.

872. What?—I would have the main roads and headings watered all the way.

873. In every case?—In all dry and dusty ones.

874. Whether you fire shots or whether you do not? —Yes.

Mr. J. S. Martin.

12 July 1906.

875. Whether there is any shot-firing or not, you would apply the same regulations as to watering as the Act applies where there is shot-firing?—Yes, so far as roadways are concerned. I do not know that I should say that with regard to the stall roads or working places unless there was shot firing.

876. Now, on the subject of ventilation, do you suggest that the test of the standard of ventilation or of the sufficiency of ventilation should be finding a cap in the lamp?—Yes, that is the standard I would lay down with regard to firedamp. I would also lay down that, having ascertained when a cap becomes visible, the percentage of gas that is then contained in the air should be ascertained, and then I would specify the cap or so much gas, so that if a dispute arose on the question it could be referred to analysis.

877. You think that would be better than the present General Rule?—Yes. I would add this to the present General Rule as a qualification.

878. I will give you an instance now. Supposing you are in a mine in which there is no gas, and therefore there could be no indication?—I am speaking of that being the standard of gassy mines. Of course, there are mines which are non-gaseous where blackdamp comes in.

879. I am going to ask you about that?—I think I provided for that in my evidence-in-chief.

880. Would you have a standard of ventilation for mines where there is gas and for mines where there is none?—Certainly, and would add it also to the present first General Rule as a qualification.

881. That would be rather an awkward thing to work out, would it not?—I do not think so.

882. Have you in your mind any rule which would carry that out?—I have not drafted a rule, but I do not think there would be any difficulty in drafting a rule to that effect.

883. Have you in your mind, not the words, but any method which you can tell the Commission of as to how you would proceed to have two standards of ventilation?—I do not think there would be any great difficulty. That in any mine in which a cap of gas was visible on the flame of the safety lamp or any part of the mine, no person should be employed, also in any place in which—I do not know how you would define it with regard to a light—in which lights did not burn freely (or some expression of that sort) men should not continue at work.

884. I should think there is hardly a mine in South Wales where you could not find some gas if you were to go into the goaf, or hold up the lamp in a hole in the workings?—I hope there is. No doubt, perhaps, if you went into some part of the goaf that would be so. I should say that there are some in which you would not find gas in that way, but there are well-ventilated mines, mines that are fit for working, where if you did get into the goaf you might find it in some cavity.

885. That is what I mean?—But then the men are not working in that.

886. No, I am not speaking about that, and you are not speaking about where men are working. You say this standard of explosive should be wherever you find a cap on the lamp in the mine?—In the current.

887. Now we are coming to a different thing altogether?—I thought I used the expression "in the current."

888. I did not understand you to say in the current. Then it is in the air current that this test is to be applied?—Yes, and in any other place no person should work until it was removed. That is provided for at present.

889. Yes, we want no alteration with regard to that. Now we are speaking of gassy mines; wherever you find in the air current such an indication of gas as shows a cap in the lamp, you would then consider that that was in a dangerous condition?—I should say that men should not be allowed to work in it.

890. In that district?—In that current.

891. Of course they would not work in that current. What would be the test in a mine that was not gassy?—That a naked light should burn brightly is one. Of course you have to make it also general, inasmuch as

Digitized by Google

Mr. J. S. Martin.

12 July 1906

you have carbonic oxide and other gases to provide for; you must make it more general.

892. If you have to institute rules in regard to which, if people do not obey them, they have to go to prison, or are at the risk of going to prison for not obeying them, those rules must be specific?—That is exactly what I say.

893. What sort of rule would you suggest?—I should qualify that word "adequate." I think perhaps Dr. Haldane would be able to give you the test better than I can.

894. When you come to think about it, could you have anything better, either in a gassy mine or in a non-gassy mine, than the present rule? I will read it to you: "An adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases to such an extent that the working places of the shafts, levels, stables, and workings of the mine, and the travelling roads to and from those working places, shall be in a fit state for working and passing therein. In the case of mines required by this Act to be under the control of a certificated manager, the quantity of air in the respective splits or currents shall at least once in every month be measured and entered in a book to be kept for the purpose at the mine." Can you suggest anything more comprehensive than that rule?—It is too comprehensive.

895. It includes everything that you want to secure, at any rate?—Yes, but you want it defined. You find some people will say that the ventilation is adequate if there is in a fiery mine a cap of half an inch on the safety lamp.

896. That question has to be decided now by the Magistrates, as to whether it is adequate or not, if you disagree?—Yes, but I want it defined so that the workman himself and he who runs may read, that it is not adequate if it shows a cap on the safety lamp.

897. You want to put your definition of that. Do you think that is quite fair to the management?—Yes, I think it is quite fair.

898. That is the point really, whether or not you would leave the management to decide what is adequate or not under all circumstances, in gassy and not gassy mines, and having regard to their condition; you say you would not leave him a discretion to decide as to what is adequate, but you would lay down some standard of adequacy?—I would.

899. Both in gassy mines and in non-gassy mines?—In non-gassy mines it is perhaps more difficult to lay down a standard; but the gassy mines are the ones in which the largest number of lives are carried away at once, and in which the matter is more easily defined. Therefore I have no hesitation in saying I would define it with regard to the presence of firedamp.

900. Your view is that the definition of adequacy should be the discovering of a cap in the flame of the lamp in the air current, and the character of the lamp is to be a lamp which is used generally in the pit?—Yes, in the pit. But I would be satisfied with the standard of colza oil. I have had a case in which I had complaint from the men working of a cap of half an inch of gas, and when I went to the place the men were working with benzine oil. That lamp showed a cap of half an inch of gas, and with colza oil it was hardly perceptible, if perceptible. Now so long as the men work with that benzine lamp I hold that they ought to leave the place and not remain there, because that is the lamp given to them for their guidance, and the rule says that as soon as firedamp is found they shall leave. But that is a much more sensitive test than the colza oil, and I think if the men were working with that they would be justified in remaining in that same air with that test. I hope I make myself clear on the point.

901. Yes, I think I gather what you mean?—I take the colza oil to be a fair test—neither extreme one way nor the other—and I say that it should be acted upon. But the men must not remain in the place tried by a safety lamp burning best colza oil if the colza oil flame will show it; if, however, the men are supplied with another lamp which does show a cap, the men must withdraw. I would refer you to pages 11 and 29 of my report for 1905, and previous reports, for my views on the subject.

902. Now with reference to shaft accidents and safety catches. I understand these safety catches are appliances by which, in case the rope should break, the guiding rods are gripped and the cage is held in the shaft and prevented from falling?—Expected to be held.

903. Yes. The idea of the invention is that it is held in the shaft and prevented from going to the bottom?—That is the principle.

904. There are two sorts of guides, are there not—wood and wire?—Yes.

905. Would a wire rope be more difficult to work properly? I suppose a wire rope becomes greasy and oily?—There are, I know, a large number of patents for catches of wire ropes.

906. It would be less easy to hold, I should think, than on the wooden guide?—Well, it is not from that point of view that I look at it. I assume them to be sufficient, but the reason I am not in favour of them is because I am not yet satisfied, and I have had no experience to show me, that if the weight came suddenly on those wire ropes they would not snap at the top where they are passed over and fastened.

907. What is the weight of one of these large cages which are used in the modern pits?—In South Wales I should think when loaded they weigh up to 12 tons; I do not know exactly; I should think perhaps more and less.

908. Twelve tons altogether?—Yes; I am not tying myself to any exact quantity, but I should think there are some up to that weight.

909. It would, of course, be a very great strain upon a guide-rope if a weight of 12 tons gripped it suddenly?—It appears to me that it would be so.

910. And if it did give way the whole thing would go—the pit would go in, I suppose, in all probability?—I do not know about the pit; they would all come down, and they would make a big mess. They would meet the other cage probably also.

911. Is there not another danger that it might come into action when the rope did not break?—Speaking from the information which I have received from Germany when inquiries were made on that point, a certain number—but they were with wooden guides—did come into action; but the number is not very large, I think. See Part 2 of General Report for 1902.

912. Still, if there is the possibility of it coming into action when the rope does not break, it would be, of course, a very serious matter?—I think the number of accidents from that cause was very small.

913. Your view is that there has not been sufficient practical experience yet to justify safety catches being made compulsory?—I would not myself support it being made compulsory with wire ropes. In fact, at present, so far as I am concerned, I would advise its not being done. May I point out that you have restricted yourself to wire ropes, and have not dealt with the question of safety catches on wooden guides?

914. Will you say anything you have to say upon that question?—That is a more open question, and I think with regard to that I would refer to the figures and statistics which are given in Part 2 of the General Report for 1902, which your secretary made a note of yesterday in order to bring before you, as to the results obtained from Belgium, France, and Germany.

915. Now we will go to the question of special rules. You said that you did not approve of the present method of establishing special rules?—I think it is clumsy. Personally, I have got on very well, but it has entailed a tremendous lot of work.

916. It is suggested that something analogous to the method of the Factory Act is desirable. You are aware that it is the Secretary of State who makes the rules under the Factory Act?—Yes, I believe that is so.

917. And he offers an opportunity to anyone interested to comment upon those rules or to object to them. Would you think it a reasonable thing that supposing you and I had a dispute and we agreed to refer it to arbitration, you should appoint the arbitrator?—I should like to.

918. But that would not commend itself to you as being a business-like way of settling a dispute, would it? Would you think further that it was a business-like way of settling it if, after the arbitrator decided, you should please yourself whether you would carry it out or not?—If they are established they would have to be carried out.

Digitized by Google

919. But would you suggest a system of that sort to establish special rules under the Mines Act?—I am not prepared definitely to go into that. The matter would require working out and thinking of, and perhaps discussing with some other people before I should like to arrive at a definite opinion. But an advisory board, such as they have on the Continent, with regard to the issue of rules, might very well be instituted for this country.

920. How long is it since we have had to take our guidance from the Continent? I should have thought we were leading people in England.

(*Mr. Wm. Abraham.*) We have agreed to the boards that are suggested.

(*Mr. Ratcliffe Ellis.*) I do not agree with you there, Mr. Abraham.

(*Witness.*) I think you are quite mistaken if you think that we are so much advanced in the race.

921-22. (*Mr. Ratcliffe Ellis.*) I am sorry to hear that. You say that there should be an advisory board?—I am merely suggesting something of the kind.

923. I want to ask you to consider it a little further. Do you mind looking at Section 51 of the Act, as to the special rules. In the Factory Act the practice is that the Secretary of State is to initiate the rules, and I have explained the procedure shortly. In the Mines Act it is the owner who has to initiate the rules. Is that not so?—Yes, in the coal mines; but the Secretary of State can also do so.

924. The initiation of the rules in the Coal Mines Act comes from the owner, because in Section 52 of the Coal Mines Act it is provided: "The owner, agent, or manager of every mine shall frame and transmit to the inspector of the district," and so on. Therefore there is that difference between this Act and the Factory Act: In the Factory Act it is the Secretary of State who makes the rules, but in the Coal Mines Regulation Act the initiation of the rules is with the employer, the owner of the mine. That being the case, it is an important difference, is it not, between the two cases?—It is a very great difference.

925. The rules are, according to Section 51: "For the conduct and guidance of the persons acting in the management of such mine, or employed in or about the mine as, under the particular state and circumstances of such mine, may appear best calculated to prevent dangerous accidents, and to provide for the safety, convenience and proper discipline of the persons employed in or about the mine." Who is responsible in case there is not proper discipline, and in case the general rules of the Act are not carried out?—The owner, agent, or manager ought to be responsible.

926. These special rules are for the purpose of detailing in what way the matters for which they are responsible have to be carried out, are they not?—Yes.

927. Why should there be a Board appointed to settle that?—Because they are subject to the Secretary of State's acceptance.

928. Not exactly?—Well, in the first place.

929. But if the Secretary of State objects we can go to arbitration?—Quite so.

930. And the Secretary of State appoints one arbitrator, the coal owner appoints another, and the two arbitrators appoint a third. That is the method of arbitration. Then if the arbitrator decides, it has to be carried out both by the Home Secretary and by the coal owner. That is so?—Quite so—it has to be accepted by the Secretary of State.

931. And arbitrated upon?—Arbitrated upon, and then it has to be accepted by both parties.

932. Of course it has to be carried out?—Well, the Secretary of State has no carrying out of it.

933. Of course not—the owner has to carry it out. But does it not occur to you that that is a fair way under the present circumstances in regard to special rules made under the Mines Act?—It depends upon points contained in the special rules.

934. Why?—Because I think if it is detailed as to who is to carry out a certain piece of work, the manager has a good deal to say with regard to which is the best way and the best plan; but arbitration itself is both costly and very cumbersome.

935. That is so far as regards the cost, but we must not consider cost in the matter. It is a question of principle?—Still, it is cumbersome.

936. It is a question of responsibility; the owner, agent, or manager is the responsible person. He has to initiate special rules for the purpose not of extending the Act, but of carrying out the Act?—And amplifying the Act.

937. Excuse me, you cannot amplify the Act by a special rule. You cannot add to the Act. It is "for the conduct and guidance of persons acting in the management of such mine, or employed in or about the mine, as, under the particular state and circumstances of such mine, may appear best calculated to prevent dangerous accidents." The person responsible for seeing that all that is done is the owner, agent, or manager, and these special rules are for the purpose of detailing how that result shall be attained. Why should there be either a board, or why should there be any other way of deciding any other question which arises than arbitration?—I think if the special rules were restricted to that altogether there would not be so much difficulty about getting them settled.

938. Can you show me any special rule in any part of the kingdom which goes beyond detailing the way in which the Act is to be carried out, and describing the various duties of the officials in the carrying out of the Act?—I have an idea there are some.

939. If it does not go beyond that you do not complain of the present system?—I complain of the present system as being distinctly cumbersome. I am not prepared to give a scheme of what is to take its place.

940. I should like, if I could, to get from you an expression of opinion as to whether, that being the object and the limit of the special rules which can be made, the method of making them as provided by the Mines Act is not a fair method?—I cannot say it is not fair, but I think it is very cumbersome.

941. I will leave it there, as you cannot say it is not fair. With reference to the investigation of accidents, Section 45 of the Act gives the Home Secretary power to have an inquiry into every accident, whether there is loss of life or injury?—Yes, or even without injury, I should think.

942. Do you suggest there should be any addition to that provision of the Act?—I think it applies to almost everything. So far as I know I think it is whether there is injury or not; but there is the question of reporting accidents that are not either fatal or serious.

943. I am speaking about inquiry into accidents?—I have nothing to say about the inquiry. You mean so far as concerns inquiry by the inspector?

944. I mean the Home Office have power, if they think it desirable, to institute inquiry into any accident, and send a man down to do it?—I think so.

945. You do not suggest that anything should be added to their powers in that respect?—It does not strike me to be so. I think the power is there.

946. With reference to the certificates of competency, do I understand you to suggest that you would make it a condition precedent to a man being allowed to sit that he must have had at any rate part of his experience in a fiery mine?—Yes.

947. Would you also make it a condition precedent that he should have had part of his experience in a mine where he had to deal with water?—To some extent I should like to, but I do not think I would go so far as that.

948. Why not?—It becomes a mechanical question.

949. Water is just as dangerous to deal with as gas; you have to be as careful with it?—No, except where water has accumulated.

950. And when you get it in the pit you have to do something with it, because it is a danger?—A mine having water in it is not necessarily a dangerous mine

951. Suppose there is a flood?—That is another thing.

952. Would you require a man to have had experience in a mine that was flooded?—Well, I think that would not be practicable—you cannot organise a flood.

953. Would you also make it a condition that he should have had experience where electricity is used?—I do not think we have got so far yet as to require that.

Digitized by Google

Mr. J. S. Martin.

12 July 1906.

954. Why not, if it is a question of his experience? If you consider it necessary he should have that experience where there is gas and water, and so on, why not where there is electricity?—Because, an accident occurring, the effect is not so serious.

955. His certificate carries him all over the country?—It does, but that is a detail. An accident occurring with electricity would only be a detail question; but an accident occurring with gas is liable to cause accidents over the whole mine, and carry away a large number of lives. The importance of the other things is greater.

956. Electricity may cause any amount of mischief, and fire your gas?—But if a man has had experience with gas and prevents it accumulating, he stops the electricity having any effect, if he is a common-sense man.

957. He would want some experience of that. You want an expert to advise you in electrical matters, and you think that should be given to you by the Home Office. If you cannot deal with it, do you not think it would be necessary that a man also should have, as a condition of sitting, experience in the very matter that you want an expert to advise you in respect of?—It would be desirable.

958. Where would a man get this experience? What district would he have to go to to get such experience?—I should not at present require it, from the point of view, as I say, that the result of an accident is not so great. You are comparing him with myself, for example. In one case he would only have the experience at one mine and the one condition of circumstances.

959. Would you mind looking at the section providing for the examination, and see really if that does not provide for anything that you want? At the present time the provision is that in each inspector's district there is a board appointed of nine persons; three of them are representatives of the men, three of the owners, and three representative mining engineers of the district, and they appoint three persons as examiners. Now the Act requires that each person, as a condition of his submitting himself for examination, should have had five years' practical experience in a mine. Is it the practice in your district for the examiners to look into the statements of the candidates' experience?—It is an alternative.

(*Mr. Wm. Abraham.*) It is no longer the rule as to the five years.

960. (*Mr. Ratcliffe Ellis.*) Five years, or a diploma. If you have a diploma you have three years, but I am speaking of the five years, although what I say would apply exactly to the shorter time?—This Act is still in force—the other is an addition or alternative.

961. Is it the practice in your district for the examiners to consider what the experience has been?—To some extent.

962. That is part of their duty, is it not?—Yes; he must have had experience in a mine, but it does not say what mine. The board has laid down in my district that they shall have, and in fact the Secretary of State expressed the opinion that they ought to have, experience with safety lamps in a fiery mine; but the Secretary of State, for the time at all events, did not insist upon that requirement being carried out in respect of Somersetshire, because I believe in Somersetshire there are only one or two mines that are fiery.

963. There is no necessity, I suggest, to alter the Act of Parliament to carry that out. Is it not competent for the examiners and for the board in each district to prescribe that as one of the conditions?—I do not think it is right or proper that there should be 12 different standards in the country for the same certificate. I do not think it ought to be left to the board as it is at present; it ought to be definite.

964. You confine your recommendation to experience in fiery mines?—At present I do not go further, inasmuch as gas affects the safety of a large number of persons.

965. Then as to plans. You suggest there should be a special qualification for a man to make a plan, and that he ought to have a certificate of competency?—Yes; I think all surveyors ought to be certified, and of a high standard.

966. Do you consider that better than enforcing the Act which prescribes that the plan shall be accurate?—I think that the requirement as to accuracy should still be maintained.

967. You do not suggest there are not men who could make a plan but who have not a certificate of competency?—I consider there are many plans which are not accurate or complete, and which are not satisfactory.

968. You can take proceedings against anyone?—But I have first to prove it to be wrong.

969. I assume you could prove it, or you would not say so?—I say so because they have been proved to be inaccurate.

970. You are not satisfied with the plans in many instances, and you say the remedy is to require people to have certificates?—Qualified and responsible surveyors.

971. And would you have them pass an examination?—Yes.

972. Under the Mines Act?—Not under the present Mines Act, but the Mines Act might provide for it.

973. Do you suggest that the certificate of competency should include a knowledge of surveying?—Do you mean the managers' certificate?

974. Yes?—That is at present a very elementary requirement, in my opinion, sufficient for putting on marks, etc., but not for a surveyor keeping plans, etc.

975. Would you consider it desirable that a part of the five years' experience might be spent in a surveyor's office?—That would not satisfy me with regard to it.

976. How is he to learn how to make a plan?—His standard of education would be one thing.

977. Where is a young man to learn how to make a plan except in a surveyor's office? Does it not follow that you would have to direct that a part of his time should be spent in a surveyor's office instead of in or about the mine?—I take the surveyors' certificate to be independent of the managers'—a different qualification.

978. (*Chairman.*) I should like to mention, with regard to safety catches and appliances, that there is a Transvaal Government Commission now sitting, which is charged with the duty of making most elaborate inquiries on this matter; consequently the Commissioners who wish to ask questions about that might like to reserve their questions until after the Report of that Commission has been published. The reference to the Commission is very elaborate indeed in reference to the matter of safety catches and appliances in shafts. They are collecting information from experts in various countries:—

"(a) Regarding the utility and reliability of the various methods of providing against excessive speed in winding.

"(b) Regarding the utility and reliability of the various methods of preventing an over-wind of the load in either the up or down trips.

"(c) Regarding the utility and reliability of the various methods of disconnecting the rope from the load in the case of an over-wind in the headgear, and the means adopted to support the load after disconnection has occurred.

"(d) Regarding the utility and reliability of safety appliances designed to stop, check, or suitably govern the motion of the load in case of the rope breaking on either the up or down trip.

"(e) Concerning any other safety appliances in use for winding—*e.g.*, safety cross-head guide for sinking buckets, etc.

"(f) To what extent do any of the safety appliances above referred to constitute an additional danger to winding operations.

"(g) Particulars (authenticated) are desired concerning accidents that have occurred during the winding operations, and specially with reference to the reliability or otherwise of safety appliances.

"(h) Any other particulars of interest with reference to this subject."

(*Witness.*) I may say in Germany to my own knowledge for over 40 years they have been in use, and the statistics I obtained from Germany and the other countries I referred to in a general report about three years ago.

Digitized by Google

979. (*Mr. Wm. Abraham.*) Will you tell me how many collieries you have in your division?—There are 185.

980. And how many metalliferous mines?—197.

981. That makes 382 altogether?—Yes. That includes large and small.

982. Can you tell me how many men are employed in those mines?—The number of persons employed under the Coal Mines Act is 54,360, and under the Metalliferous Mines Act 8,396.

983. What area do they cover?—The whole of the South of England and Monmouthshire.

984. How many counties?—Twelve; but of course there are several counties which have not got mines in them. They have quarries, but not mines.

985. Yes; but you are the chief inspector for all?—Yes.

986. I understood you to give us the approximate number of visits by yourself and your two assistants as being about 520 a year?—About that. The number last year was more.

987. But I am taking all the figures you gave?—You may take it from 400 to 500. The average for the three years is somewhere about 540 a year.

988. What is the figure for last year?—585.

989. I put it at 520?—It would be rather more than that.

990. So that between the three of you, you are not able to pay two visits a year to all the mines and quarries which you inspect?—Oh no; the inspection of quarries are outside that altogether.

991. Can you give me that number?—I have not the figure with me. I could have obtained it this morning if I had known it was wanted. But you must remember that a number of these mines are very small. For instance, in the Forest of Dean there are a large number of small mines.

992. I think you told us yesterday that in your visits you are not able to examine all the collieries?—That is to say, the whole of the colliery?

993. Yes?—No; we do not attempt it. In some individual collieries I have had the whole colliery inspected; but that is not our principle, nor do I think it is necessary.

994. Of course, you see my point is as to how many visits it is possible to make to each of these collieries?—Some collieries have seven or eight visits in a year.

995. Can you tell me in what number of cases in regard to your great collieries the whole of the colliery has been inspected during one year?—Of the moderate-sized ones, perhaps half a dozen.

996. Then there must be a large number that are not visited at all?—No; every colliery has been visited—I will not say that there are not four or five of the small ones in which there are three or four men employed that have not been missed.

997. Taking your visits to collieries as a rule, what number of hours do you reckon you give to actual inspection?—The inspection underground in my district extends from half an hour up to five or six hours.

998. In fact, there is a great deal of time spent in travelling to and fro, is there not?—There is an amount of time spent in that way, certainly. In some cases an inspection will be made in the morning, and an inquest attended afterwards, in the afternoon generally.

999. That of necessity gives you but very little time for inspection. I do not say that it is not sufficient for your purpose, but it gives you very little time for it. You inspect the place at which the accident has happened?—And when there is time we inspect in addition such other part of the mine as allows of inspection.

1000. I am basing this question upon what you have said: Is it not a fact that, generally speaking, with the present staff you have it is impossible to make a minute inspection of the collieries in the division which you have to attend to?—Do you mean throughout the mine?

1001. Yes?—Quite. It takes a week to go through some of the mines. I do not think it is even necessary or desirable to do so.

1002. But, as a fact, that is so?—As a fact, it is so; but I say I do not think it is even necessary or desirable. You take a certain portion of the mine, and you take that as your sample, and what you find wrong there you deal with, and that is an example to the manager for the rest of the mine.

1003. But there are collieries which under the Act are divided into three or four mines?—No, not in my district.

1004. In your district does not a current of air which passes go through portions of the collieries independent of other portions?—It still remains the same colliery—they are not divided.

1005. No; but for the purposes of the Mines Act is it not so?—No.

1006. Does not the Mines Act say that you should divide the collieries or mines in the portions in which the current of air passes?—It says that you may do so; but it has to be done formally, and everything has to be in accordance with it. I hold that the mine must be independent—that if they are dividing a mine in that way for it to be under a different manager, they must divide it up independently, and it must be entirely independent.

1007. Then in that sense the Mines Act needs to be amended?—I do not think so. I prefer to have one good manager over the whole mine and over a whole colliery than to have two managers over portions.

1008. That is not my point at all. The Act says (Section 19): "Where two or more parts of a mine are worked separately, the owner, agent or manager of the mine may give notice in writing to that effect to the inspector of the district, and thereupon each such part shall, for all the purposes of this Act, be deemed to be a separate mine"?—Yes, but it must be worked separately, and if it is working out of the same shaft I do not hold that it is done separately.

1009. It says that the owner, agent, or manager of the mine "may give notice in writing to the inspector of the district, and thereupon each such part shall for all the purposes of this Act be deemed to be a separate mine." Then you do not agree with that section?—I object to a colliery being divided up into different mines under the Act, where they are not independent.

1010. Then in your opinion this rule is not a correct one?—I do not say that that is not correct. Suppose you have a colliery *here*, and you have one seam working *here* and another seam on the floor; if you have two shafts to *this* seam and two shafts to *that* one, and they are worked separately, they may be separate mines; but if there are two shafts *here* sunk to these two seams, and these two seams are worked out of those two shafts, I hold to be one mine.

(*Mr. Ratcliffe Ellis.*) If I may be allowed to say so, you see it must be that they are worked separately. It says: "Where two or more parts of a mine are worked separately."

(*Mr. Wm. Abraham.*) They are two mines still, worked from the one shaft.

(*Mr. Ratcliffe Ellis.*) But the witness says he does not recognise that as a separate working; and if you look at the next clause you will see that the Home Secretary may object if he considers that the division of the mine may evade the Act.

(*Witness.*) I have had several cases in which they wanted to appoint different managers to different parts of the same collieries, and I objected; and I have always, so far, been able to carry my point.

1011. (*Mr. Wm. Abraham.*) Then a single visit of yours to a mine is not supposed to be covering the whole of the mine?—Certainly not—not as an inspection of the whole of the mine.

1012. According to your evidence, having regard to the number of mines and the number of inspectors, even single visits are not equal to two visits of each mine per annum?—No. But then you must qualify that by this—that some mines only employ a very small number of hands, in some cases only one or two; in others perhaps they employ 1,000. The larger mines are inspected more than twice a year, as a rule, in my district.

1013. The whole of the mines?—Oh, no.

1014. That is my point. In any case, you do not guarantee that the whole of the mines in the collieries in your district have been visited more than once in a year?—The whole of them—no, not the small ones.

Digitized by Google

Mr. J. S. Martin.

12 July 1906

1015. Now, will you take your large collieries. Is it, in your opinion, sufficient that they should be seen or inspected once a year?—They are seen more than once a year, the large ones—sometimes six or seven times.

1016. The whole of them?—No.

1017. Portions of them are?—Portions of them. I do not think it is necessary to inspect the whole of the mine.

1018. With regard to your large collieries, can you say whether they are visited by your staff—I do not say by you yourself—twice a year?—Yes, I should say so.

1019. I mean the whole of them?—Oh, no.

1020. In your opinion it is not necessary?—No.

1021. Then in your opinion inspection is only casually necessary?—As a check. You take a certain portion of the mine, and with regard to whatever you find wrong there, you assume that the colliery is worked on that principle. If you find it right, you consider it is worked on the right principle. Inspectors are not to be looked upon as firemen—to go through and do firemen's work.

1022. Then inspection, in your opinion, is not necessary before an accident takes place?—Oh, it is very largely carried out. A very large number of inspections are made in my district without accidents—I mean to say not for the purpose of inquiring into accidents.

1023. But I thought you said it is done as a check?—Yes, to see what the system of management and discipline is.

1024. Then the necessity for inspection is for the purpose of knowing what the system is?—And the discipline.

1025. Not to see whether it is carried out or not?—If the discipline is good it is carried out, and that you can find without going through the whole of the mine.

1026. But supposing some parts of a colliery are not inspected, can you by the visit which you are now describing find that out?—It depends upon whether one just takes that district or does not take it; but if I made an inspection of the whole of a mine to-day it does not say that the whole of the mine to-morrow will be all right, nor that it will be all right next week or next month. But if you take a certain section of it and find things all right and the discipline satisfactory, you may take it then that that manager's discipline in other parts is the same. You may put it in this way, that it is a sample of the mine.

1027. In your opinion that sampling of the mine is sufficient to answer for examining the mine?—That is quite sufficient, in my opinion, to carry out what is intended, and it is, in my opinion, also sufficient. That sampling may be done more or less frequently.

1028. But the point is this: is it in your opinion being done frequently enough to secure the safety of the mine and the miners working there?—In my district I think it is. I can only speak for my own district.

1029. Have you had no case which shows that there should be other inspections?—Yes. I daresay if I made an inspection to-day I might have to inspect again in a fortnight's time by reason of a change of circumstances.

1030. Does that not prove that frequent inspections are necessary?—Frequent inspections of that description should be carried out by the management.

1031. Then inspection of mines in that way is, in your opinion, a carrying out of the provisions of the Act—if it is to be satisfied with samples?—I think so—from time to time—sufficient samples and in regard to a sufficient area.

1032. Of course, I shall not follow up that question, because we should want to know what is considered sufficient, and how many inspections per annum would be considered sufficient, and so forth?—I do not mean that if you go into one place that would justify you in saying that the whole of the mine is like that; but if you take a district, that district gives you a very fair idea of what the condition of the mine is, or is likely to be, at all events. For example, take an accident from a fall of roof, an inspection of the whole of the mine to-day by an inspector does not for a moment prove that a fall of roof to-morrow may not take place in a working place insufficiently timbered.

1033. Quite so; but in order to satisfy yourself that it is sufficiently timbered, is it not necessary that the inspector should inspect the mine before the accident happens and not after the accident happens?—But he would then have to do it every morning like the fireman. All he can do is to see that the discipline is generally such as to provide for the general timbering of the place—not the single place, but that generally speaking the timbering is good. Even the manager of a mine himself, if he goes down every day, cannot guarantee that because he has been in a certain place this afternoon that place will be sufficiently timbered to-morrow. It is the same thing with Government inspection; it is not intended to go into it as frequently or as minutely as a manager even is supposed to.

1034. Does not the Government inspection mean, or does it not intend, that the Government inspector should be satisfied with the general condition of the mine?—It is so, and I take it that he does satisfy himself by an inspection of a certain area of it.

1035. Without seeing the other portions?—Yes.

1036. Paying a visit about twice a year is, in your opinion, sufficient to satisfy you in that way?—It is done more or less frequently—generally more frequently than that. But that ought to be sufficient. I will not say that in every mine it ought to be sufficient, but in some cases visits are paid more frequently, and in some cases they are not so frequent—it depends upon circumstances.

1037. We will go to the question of firemen, the examiners of mines. I think you expressed an opinion yesterday that it was not necessary that such men should pass any examination, or that they should have any special qualification?—Not any Government qualification; that they should not be required to have a Government certificate. The overman should have one of the present under-managers' standard.

1038. Then, in your opinion, what is the qualification that is necessary to make an examiner a competent examiner?—Different mines require different standards, but generally speaking, intelligence, a certain standard of education—if partly technical, so much the better—character, at least five years of general experience in a good colliery, and the man's industry.

1039. You think he does not require any special knowledge about gases and ventilation?—His experience will have brought him to know a certain amount of that. I do not consider that he requires a very large amount of theoretical knowledge—a certain amount, yes; but his practical experience, with the other qualifications I mentioned, meets that point of dealing with gas.

1040. You would surely consider that he needs knowledge as to how a colliery should be properly ventilated?—His district or portion of that colliery. I do not consider that it is necessary for him to plan and lay out the ventilation of the whole of an extensive colliery; that is the manager's work. But he must understand the ventilation of his own district, and how to ventilate the detailed portions; this knowledge and experience would be a guide to a manager in appointing him.

1041. His experience as a miner?—The manager's knowledge and experience of him as a miner, and, of course, his general knowledge of his intelligence, character, experience and industry, etc.

1042. That is not his own experience, but the manager's experience of him?—The manager's experience of him and his work and of the man's experience also.

1043. Is that not changing the ground a little?—No, not a bit; whether it is differently expressed or not I do not know, but it is not changing my view in the slightest.

1044. Then the man needs an experience and a knowledge of ventilation?—Certainly. I have already said in my evidence-in-chief that he ought to have five years' experience of general work in a mine—not coal-getting merely.

1045. (*Mr. Ratcliffe Ellis.*) May I ask who you are speaking of now—is it the fireman?—The would-be fireman, if I understand correctly, or the man to be appointed as fireman.

Digitized by Google

1046. The point as to five years' experience refers to the certificated manager, I think?—Yes, I know; but I think I said that a fireman ought to have five years' experience in general work.

1047. (*Mr. Wm. Abraham.*) I did not understand you to say that, but if you say that I will take it. Before he is appointed as a fireman you think he ought to have five years' experience as a miner in that mine?—I will not say that it ought to be in that specific mine. The manager ought to be satisfied that he has had five years' general experience, and good experience. In many cases I find that people think a man must be a coal-getter in order to be a manager; now a coal-getter is to me little more than a machine with simply a judgment as to his own safety in his own working place as regards timbering; he has had no opportunity of learning the general work of a district if he is only a coal-getter.

1048. But is it your opinion that a man who is not a coal-getter would make a good fireman?—I do not think he need be a very good coal-getter in order to be a good fireman.

1049. Need he be a coal-getter at all?—He will have some knowledge of it from his general experience.

1050. How is he to get his experience?—He will get that by his general experience in a district. He may have got coal for three, six, or twelve months; but a man who does nothing but coal-getting is certainly not a man who is to my mind suitable for a fireman.

1051. About how many places in a fiery mine would you consider ought to be sufficient for such a man to examine, in order to enable him to examine it thoroughly?—Do you mean the fireman?

1052. Yes?—I cannot give an answer to that question, because so much depends upon circumstances.

1053. But what distance, in your opinion, could he travel, and what number of places could he deal with properly, within the two and a half hours allotted to him?—I should judge that more or less by the circumstances of the individual case in itself; I could not lay down a theoretical area for a man.

1054. Have you known cases where these men have had too much work to do to be able to do it efficiently?—Yes, I have—at least cases in which, in my opinion, they have had too much.

1055. Yes, in your opinion, of course. Do you know several of such cases?—I cannot say that I have known several. From time to time it has appeared to me to be so, and I have had the districts reduced where they have come under my notice.

1056. Is it or is it not the practice in your district that these men should be occupying their time in doing several other kinds of work during the shift, such as looking after the repairs, acting as brattice men, shot firers, carrying the firing batteries and cables, boxes of detonators, and supervising the ramming, and so forth?—Yes, there are cases where they take the supervision generally of all work going on in their district.

1057. Does that in any way tend to the efficiency of their work as examiners?—I consider in some cases that is part of their work; they are responsible persons for that district, and for all that goes on in the district.

1058. Do you consider that it is necessary that they should altogether pay, say, three visits to each place—roads, working places and all?—I think they ought to pay two visits at least.

1059. You do not mean two in addition to the morning visit?—Yes, two visits while the men are at work.

1060. That is three altogether; that is what I thought you meant?—Not three in the workmen's shift—three in their shift.

1061. Very well, one before the workmen's shift and two during the shift?—Yes.

1062. Do you think that they are able to do their work as examiners efficiently if they have all that other work to do?—That in some cases is part and parcel of their work as examiners, in my opinion. It is only the difference between supervising that work and supervising what you might call the coal-getting.

1063. Is it a part of the examiner's work to be a shot firer?—It may be; it will depend on his district.

1064. Is it part of his work to carry out the battery and cable, and so on?—I say it will depend upon his district. Of course, the size of his district will have to be regulated accordingly. I am not sure that the fireman is not the best man to be the shot firer, because he knows the conditions of his district.

1065. That is not my question at all. When he does that work, has he sufficient time in which to do his work properly as an examiner—that is what I am putting to you?—It depends upon the size of his district.

1066. And there are some districts in which there is too much for him to do?—I have known some cases where that is so.

1067. As a rule, how many hours per day do these men work?—I cannot tell you. I think, if I take the statement of Mr. Henry Davies, who published some paper or made some addresses, such a man works 12 hours or even 14 hours—from eight to 12 hours is what he shows.

1068. As you have mentioned Henry Davies, is not his statement as got from these men this——?—As represented to him.

1069. Yes, as represented to him by these men themselves, that they are working 12 hours a day?—I think he states that.

1070. Of course, I do not want that information, but I wanted your opinion?—I know they work 10 hours, and believe in some cases 12.

(*Chairman.*) Mr. Davies says: "How can I expect a fireman engaged on a 12-hours shift six days per week to meet all the demands on his time, energies and skill"; and he seems to suggest certainly that the fireman does work 12 hours a day.

(*Mr. F. L. Davis.*) There are many other cases in that book in regard to which he says that the hours are very much less than that.

(*Chairman.*) This is as fireman, I understand.

1071. (*Mr. Wm. Abraham.*) I suppose we can call Mr. Henry Davies as a witness. He has come in contact with these men generally. I do not wish to carry it further, because I shall ask that Mr. Henry Davies should be called to give his evidence, according to the value which the Commission may place upon it. I do not want to place Mr. Henry Davies' opinion against yours; it was you who mentioned him, and not me?—I only say that I have seen that in his paper as being stated by him and represented by the firemen. I have not myself had representations made to that effect, but I believe it to be a fact in some cases.

1072. But do you not know as a fact that these men in your district are working 10 hours a day?—Yes, I am quite sure they are working 10 hours a day, some of them—I will not say all, but the greater number of them certainly are.

1073. But are not some working more?—I cannot say with certainty. It is quite probable.

1074. (*Mr. Enoch Edwards.*) You are speaking of Monmouthshire, are you not?—Yes, I am referring to Monmouthshire, and I presume Mr. Abraham refers to Monmouthshire.

1075. Not Somerset or the Forest of Dean?—No.

1076. (*Mr. Wm. Abraham.*) I think you stated yesterday as a fact that the number of accidents from falls of roof and sides has been reduced since the introduction of safety lamps?—I have handed in a table which shows that that is so, with the exception of, I think, the last three years. The last three years have been exceptionally heavy. You will find the table at p. 79 of my Report for 1905.

1077. Will you give us the figures briefly?—In 1888, with 33,453 persons employed and an output of 9,198,139 tons, there were 25 fatal accidents and 27 deaths; in 1889 there were 33 fatal accidents and 35 deaths; in 1890 there were 27 fatal accidents and 27 deaths; in 1891, 20 fatal accidents, 20 deaths; in 1892, 23 fatal accidents, 24 deaths; in 1893, 26 fatal accidents, 28 deaths; in 1894, 23 fatal accidents, 24 deaths; in 1895, 29 fatal accidents, 30 deaths; in 1896, 27 fatal accidents, 27 deaths; in 1897, 34 fatal accidents, and 34 deaths; in 1898, 21 fatal accidents, 21 deaths; in 1899, 23 fatal accidents, 23 deaths; in 1900, 28 fatal accidents, 29 deaths; in 1901, 27 fatal accidents, 27 deaths; in 1902, 18 fatal accidents, 21 deaths; then in the last three years, 1903, 45 fatal accidents, 47 deaths; 1904, 35 fatal accidents, 41 deaths; 1905, 39 fatal acci-

Digitized by Google

Mr. J. S. Martin.

July 1906.

dents, 40 deaths; and the number of persons employed has increased up to 54,360, and the output is 13,333,307.

1078. Does that not prove that the figures for the last three years fail to carry out your statement of yesterday that the introduction of safety lamps has been the means of reducing the number of accidents that occurred previously?—No, because the average of the previous years will show that it is otherwise. That is only for a limited period.

1079. Of course, I am taking the limited period?—Yes. I have not the figures here. The number of safety lamps is contained in another report of mine for the year 1900.

1080. I am simply dealing with the statement which you made yesterday?—I think I gave you the figures for the average of a certain number of years. You will find I stated it was about a quarter of the lamps. In Monmouthshire, where the safety lamps have been principally introduced, the average number of fatal accidents from falls for seventeen years, from 1874 to 1890, with less than two-thirds of the number of persons employed, and less than a quarter of the number of safety lamps used, was 23·35 per annum, as against 22·33 for the fifteen years, from 1891 to 1905, inclusive. That is including the three bad years. So that there is a reduction from 23·35 to 22·33, even including those three bad years.

1081. But do you attribute the reduction of the number of accidents which has taken place to the introduction of safety lamps?—A reduction of the accidents from explosions of gas, but no increase in the accidents from falls of roof. I do not attribute the reduction in the number of falls of roof to the use of safety lamps, but I say that they have not increased the number. They are a safeguard against gas, without causing an increase in the number of falls of roof.

1082. I understood your statement to be different yesterday; but I will take that from you now?—I consider an examination is better made with safety lamps than with naked lights, because the examiner cannot see so rapidly when he is examining with a safety lamp, and he does not trust merely to looking, but he sounds it more. He looks closer with his lamp because he has to do so, and, besides that, he trusts to the sounding much more than when the examination is merely done with a naked light.

1083. So that the reduction of the accidents from falls of roof and sides is not due to the introduction of safety lamps?—I do not go so far as to say that; but I think the examination is much better made when they use safety lamps.

1084. Do you mean the testing examination?—The testing examination. A collier with the naked light passes his candle across the roof like *that*, and he trusts to his eyes more. With a safety lamp he cannot do that. He has to look more closely, and besides that he is inclined to sound it more with the pick.

(*Chairman.*) It would seem to me to be rather a paradox that the dimmer a light was, the less falls of roof there would be.

(*Mr. Wm. Abraham.*) Yes. I did not wish to put it again, because I did not like to do so.

(*Witness.*) The figures show that that is the case, but I account for it by the fact that the man is not able to see so rapidly, and that he trusts more to sounding as well as to closer examination.

1085. (*Mr. Wm. Abraham.*) But is it not possible that this reduction of accidents is accountable for by a better method of timbering and closer inspection?—I do not mean to say that it is not so. But I am first of all pointing out the fact, and then I say that I think that is the reason. I said at the time of the Cwmbran explosion, in my evidence in 1891, that I considered the examination would be better made for the reasons I have mentioned—that a man with a naked light is more liable to trust to his eyes without sounding than he is when he has to look close up to it, and that he then sounds it more. He is not satisfied that he can see so well, and he then also brings in the testing with his pick.

1086. To what chiefly do you attribute the large number of accidents occurring from falls of roof and sides in that district?—In some cases to unforeseen causes. In some cases to pure accidents, and in some cases to neglect.

1087. You have had experience in other districts, as we know. Are not the strata in that part of the country, generally speaking, much more dangerous to work in than in other parts?—It depends upon individual cases. In the Manchester district in my time some of the seams had quite as bad roofs as they have in some that I have now. You must also remember that the upper coal seams in Monmouthshire have got a better roof than the lower ones, and, according to the figures which I have shown, the number of accidents when the upper seams were more extensively worked were greater than they are even with the lower ones. So that it is a matter of precaution.

1088. In your opinion, is not a great deal of this liability to accidents caused by employment of unskilled labour?—I have not found that to be the case.

1089. Can you say from your experience in the Manchester district and in South Wales whether there is not much more unskilled labour in South Wales than there was in the Manchester district?—I object myself to lads of eighteen and nineteen being given stalls; but in this case the experience generally is that they are brought in from thirteen years of age upwards before the face, and at eighteen years of age they are considered to be capable of taking charge of a stall, and that is not called unskilled labour.

1090. It may not be called so, but in your opinion is it unskilled? Is there not a different system of training these young men in the Midland district to the system that we have?—They do not put them in at the same age at the face; it is not a rule to put them in at the face. I am speaking now, of course, of Manchester district as it was twenty years ago.

1091. Do you agree with the general opinion that our closeness to a number of the agricultural districts, and the easy access that the young men have to our mines, has something to do with the number of accidents which have taken place?—That is not my experience. It is not the unskilled man who comes in straight away that gets killed, as a rule.

1092. Well, who is it gets killed?—The more experienced ones.

1093. How many years does it need for an inexperienced lad to work in a colliery to get killed sooner than a skilled man?—It will depend upon the place that he is working in, as a rule; but my idea is that a man who has not been brought up to it, and who has not been for years engaged at the work is more easily frightened, and is more careful than a man who has been at it for a long number of years. I have often instanced the same thing with regard to a person crossing the street in London. The man who lives in London thinks nothing of going in and out of the horses' heads and going across, but if you bring a person up from the country he will wait at the side of the street until there is a great space on both sides and then go across. It is the same thing very much with regard to colliers—being accustomed to it—familiarity, as it were, breeds contempt. I have known colliers fifty and sixty years old, who have spent all their lives as colliers, getting caught quite as easily or more easily almost than a stranger brought into a mine. I do not think that the employment of unskilled labour is the cause of those accidents.

1094. I think Mr. Ellis asked you a question as to what would be the effect upon the number of examinations made upon the eight hours' system. Is it not a fact that the examination you spoke of before the shift commences is to be made before that shift, whatever the number of hours worked—or has the number of hours to be worked anything to do with the examination of the colliery before that shift?—Not at present.

1095. But is it necessary. If the examination is to be made before the shift, would it have in any case any effect upon the number of hours worked?—It would have an effect upon the number of hours that the fireman or examiner worked if he remained in charge of his district up to the end of the shift. It would add two hours to his shift, but not to the workmen's shift.

1096-7. The three examinations could be done in less than ten hours?—It could be done in ten hours, but not from bank to bank.

1098. That would depend, would it not, on the time that you allowed between the visits, or between the examination?—No, you are mistaken as to the examination which Mr. Ellis referred to. Mr. Ellis

Digitized by Google

referred to the examination being made before the workmen commenced.

1099. But that would have no effect upon the number of hours that the workmen would be there?—No, only the official—only the examiner.

1100. It would not affect the changing of the system of hours for the general workmen?—Merely a reduction of the hours, that is all. It would not make any difference in the system.

(*Mr. Ratcliffe Ellis.*) No person is allowed to be down; although the men might come up in the eight hours, the official could not come up in the eight hours.

(*Mr. Wm. Abraham.*) We think that if these statements are made they can be proved, and I think they will be proved, showing that these men, who have such important duties to do, need to have all their capabilities about them, and that the hours should be reduced very much from what they are now.

(*Mr. Ratcliffe Ellis.*) This is only to meet this point: Mr. Martin said, "I think the man who makes the examination before the shift should be the man who makes the examination during the shifts." If that is so, he clearly could not come up in the eight hours.

(*Mr. Wm. Abraham.*) It would depend very much upon the number of places and the distance he would have to travel to make the examination.

(*Mr. Ratcliffe Ellis.*) Unless he was to do the two shifts at the same time.

(*Mr. Wm. Abraham.*) If he was examining whilst acting as bratticeman, or was looking after the labourers, and so forth, he would not have sufficient time.

(*Chairman.*) That is to say, whatever shift you have, if Mr. Martin's view is to prevail, there must be certain officials who will have to work longer than that shift—that is the point.

(*Mr. F. L. Davis.*) Yes, or he would have to come up before the other men.

(*Mr. Ratcliffe Ellis.*) They could not have the superintendence of the places during the shift if they came up before the shift.

(*Mr. Wm. Abraham.*) I do not suppose we are allowed to discuss this question now, but our opinion is that these men have enough to do without superintending labourers, keeping time, and so forth.

(*Witness.*) I think there can be no objection to those men superintending the labourers so long as they have not got to labour themselves.

1101. (*Mr. Wm. Abraham.*) It depends a great deal upon what time they have to do it in, does it not?—Yes, it depends upon the area which they have to look after more than the time.

1102. It depends upon the time that they would have to superintend and the work which they have to do during the hours?—That would be so.

1103. I think you have expressed an opinion that it is dangerous for men to continue in any place where a cap of gas appears in their lamps?—I think it is working where they ought not to work; it is, in my opinion, like going into an explosive magazine with a naked light. See pages 11 and 29 of my report for 1905 on this matter.

1104. You have had a case or cases within your knowledge, or at least within the knowledge of your assistants, in which men did do so?—Yes, I have; it is my own experience.

1105. What did you do then?—I got them to improve it, and to do away with it.

1106. But did you order the men out?—Yes, or rather I did not order them out, I suggested that they should be sent out. I have no power to order men out.

1107. Then you did not order them out?—I did not order them out, but I suggested that they should be sent out, and they were sent out. My assistants have also done the same, and whole districts have been stopped in consequence of my objecting to the cap.

1108. Is it not the fact that your recommendation and advice not being accepted at a certain place an explosion happened?—No, I do not think so. You are referring to Abertysswg?

1109. Yes?—That came out after that not before it. My assistant was down that morning.

1110. But had you not yourself recommended strongly that the men should not work where a cap appeared on the lamp, and is it not a fact that the management promised you that it should not be done?—I cannot remember whether it was so or not without refreshing my memory as to that point. My assistant was down that morning, and found in another part of the mine that there was a cap on the flame. *Mr. J. S. Martin.* 12 July 1906.

1111. But let me try to refresh your memory. On several occasions in 1900, 1901, and 1902 you drew the attention of the colliery owners and their manager to the presence of gas in that mine. (*Referring to reports*)?—That would be so, if it is there.

1112. Did they promise that they would give up that practice?—Yes, I think so. I cannot bear the promise in mind. If I have stated it there I have had it in writing.

1113. Very well. Is it not the fact that it was done after that?—It was done on the day of that explosion in another part of the mine to the part at which the explosion occurred.

1114. Yes, of course?—The part where the explosion occurred was where gas had accumulated.

1115. But, taking you at your word, would you take the test of your assistant inspector on several occasions in that mine to be a proof that the whole mine was safe to work in?—If he said so I should take it.

1116. Even if it proved not to be so in the end?—To the best of his judgment he would give me his report, what he thought was right. But if they reported a cap of gas to me, then it would not be considered right.

1117. But in this case it was reported to you?—Then it was written about, and pointed out that it was not proper. It is in consequence of that that I say the first General Rule is not sufficient as it is at present.

1118. Then it comes to this, that you have no power to enforce the recommendation which you give, even when you think that there is an extremely dangerous condition of things?—Upon that point I should be very doubtful as to whether you would gain a case before a Bench of magistrates or not.

1119. That is not my point, I do not care about magistrates—I am examining you now, and I am not dealing with the question of magistrates at all?—But I am pointing out what I consider to be the inadequacy of the first General Rule, by referring to that.

1120. Have you any power to enforce your recommendations on colliery managers?—Not unless there is what can be proved as a breach of the law.

1121. Then if there is a cap of one-eighth, one-fourth, or half an inch on the lamp, is it, in your opinion, a breach of the rule?—In my opinion it is so, but I know it has been questioned by other people having a different opinion.

1122. It has been questioned, I think, by some mining engineers, to your knowledge—that is the point?—Yes, I think I have heard that.

1123. I want some attention paid to that point, that you know from your own knowledge that mining engineers, managers of great collieries, have expressed it as their opinion that it would not be dangerous to work with an eighth of an inch or a quarter of an inch?—I have heard that said. I have heard it said that they could go into such a place with a naked light and that it would not explode.

1124. But you do not agree with that?—I should like to be at the surface.

1125. I think you expressed an opinion yesterday that in some cases the coroner's inquiry is not quite satisfactory?—I have known some coroner's inquiries which were not.

1126. Was it satisfactory in this case which we are now dealing with, the Abertysswg case?—Yes, I think it was thoroughly satisfactory.

1127. Notwithstanding that they refused to carry out your instructions?—The inquiry was perfectly satisfactory.

1128. Yes, into the cause of death?—That is a matter for the jury. There are many cases where I do not take much notice of the cause of death. I am not guided in my opinion by the result of a coroner's jury's decision.

Digitized by Google

Mr. J. S. Martin.

12 July 1906.

1129. No, but this is such an extreme case that I should like to know what other cases stronger than this, or other than this, justify the statement which you made yesterday?—I have known cases where I have not considered that the coroner's jury came to a proper decision; but that is not the fact of the inquiry. I mean to say I am not questioning the decision of the jury there, because that is a matter of law, I suppose; they must decide that, and the legal gentlemen must decide such questions. I am speaking of the inquiry, and the inquiry, in my opinion, was perfectly satisfactory.

1130. (*Chairman.*) That is to say, they had all the evidence before them, but in your opinion they came to a wrong conclusion on that evidence?—Well, they came to a conclusion, and I suppose they were satisfied that it was the right one.

1131. You say you think that sometimes the verdict of a coroner's jury is a wrong verdict, but that is not necessarily because all the evidence is not placed before them, but simply because they take a different view of the evidence to the view which you would take of it?—Yes.

1132. (*Mr. Wm. Abraham.*) Supposing the same evidence was put before practical engineers, mining engineers, and practical workmen, would not they naturally come to a different conclusion?—The decision of a coroner's jury is sometimes very much influenced by other matters.

1133. That is not my question at all. You can simply answer "Yes" or "No" to my question, because I think I know your opinion on the point?—No, I do not think I can say "Yes" or "No" to that. Will you put the question again, and I will answer you "Yes" or "No" if I can.

1134. Take the evidence in this case, or in any other upon which you think the coroner's jury came to a wrong conclusion; if the same evidence were placed before practical mining engineers and practical workers, would not they arrive at a different conclusion?—They may or may not. I could not give you an answer "Yes" or "No" to that.

1135. (*Chairman.*) That is to say, a jury of experts might find differently from a coroner's jury on the same evidence?—That might be so. But now I should qualify the answer. A coroner's jury is sometimes influenced by local circumstances, according to my opinion of some of the decisions.

(*Mr. Wm. Abraham.*) I think we have in our minds the necessity of another inquiry. I put the same question as I am putting to you now to the gentleman who appeared here from the Home Office, and he was of the opinion, which I think is a very natural one, that the same evidence as was placed before more or less inexperienced men would have quite a different effect when placed before practical mining engineers and practical workmen.

(*Mr. F. L. Davis.*) It might have a different result, I think he said, not that it would have. He said just what Mr. Martin has said—that it might have a different effect.

(*Witness.*) I do not think anybody could say what effect it would have upon other people's minds—only what effect it would have on their own.

1136. (*Mr. Wm. Abraham.*) Then in mining cases practical knowledge is of no avail and of no use?—No, I do not say that.

1137. It comes to that?—On that jury, if I remember correctly, there were a number of practical men.

1138. But, notwithstanding your recommendations in that case—your instructions, if you like—that allowing men to work where a cap of gas appears upon their lamps should be discontinued; notwithstanding that that was proved to be the case, although in another part of the colliery, on the morning of this accident; notwithstanding the fact that you yourself knew that it was customary in this colliery to reduce the vibrations of the fan in the night, and so forth, and notwithstanding that decision, in your opinion is not another kind of inquiry necessary?—Not to arrive at the facts. I think that inquiry was as full an inquiry as would have been made. Whatever the result might have been is another thing; but the inquiry itself on that occasion was, to my mind, a very full inquiry.

1139. Then of what avail are experts when inquiries are conducted in cases of accidents in other industries?—To give their opinion.

1140. Then is it necessary, in an extreme case like this, that experts should be the judges?—That is a question which I cannot very well answer. The only thing I say is that, so far as the inquiry is concerned, and so far as bringing the facts out, it was sufficient.

1141. I do not ask you that at all. I believe that, but I am asking for your opinion upon the evidence, and the fact that you instructed these men and that you recommended and, so far as you could, proved to them that the general condition of working in this mine was not a safe one?—It was not satisfactory under those circumstances.

(*Mr. Wm. Abraham.*) If time permitted, I could put all your evidence and all your opinions before the Commission, but I do not wish to take up time now. This question will have to be carefully considered.

1142. (*Chairman.*) Upon that point I should like to ask you the same question as I put to Mr. Delevingne, I think—that is to say, whether, in your opinion, it is a satisfactory state of things with regard to this second inquiry that the Secretary of State should be the sole arbiter as to whether such a second inquiry should be held, or whether you would think it better that a certain number of persons interested should deal with the question of the second inquiry, or that some provision of that kind should be made, or that there should be some power given of holding an inquiry without the sanction, we will say, of the Secretary of State—that is to say, that the Secretary of State should not be the only person to decide for or against a second inquiry?—I really do not know who else could be appointed; unless there were some Board appointed for the purpose, I do not know who else could be.

1143. There seems to be a strong feeling on the part of the men in this matter that the Secretary of State is badly advised in not allowing a second inquiry. My question is really whether you think that their feeling is justified, and that some means should be taken by which it should not be left entirely in the discretion of the Secretary of State as to whether a second inquiry should be held or not. You said that there might be some form of Board. Do you think that would be a good thing or not, or do you think, on the whole, it would be better that the matter should be left to the Secretary of State's decision, as at the present time?—I do not know. I rather think that the decision of the Secretary of State ought to be sufficient. But I may say that the only point which I think could be arrived at differently would be the result. I think that the inquiry which has been referred to was complete in itself; the result might be brought out differently, but that is the only point, I think.

1144. (*Mr. Wm. Abraham.*) That is what I have been asking you all along—that the result might be different?—The result might be different, but so far as the inquiry is concerned I cannot tell you whether it would or would not. But I say that the inquiry itself was complete, and was very full.

(*Mr. Ratcliffe Ellis.*) Is the complaint that all the facts were not brought out, or that the decision was wrong?

(*Mr. Wm. Abraham.*) There were facts which were not brought out, and on the facts which were brought out there was a strong opinion that the decision was wrong.

(*Witness.*) I was not aware that there were facts available which were not brought out. I understood, and I think at the present time that, so far as known, all the facts were brought out.

(*Mr. Ratcliffe Ellis.*) That is the point, because if the inquiry is for the purpose of ascertaining the facts, that is a different matter.

(*Mr. Wm. Abraham.*) The coroner's inquiry is an inquiry into the cause of death, and not so much into the cause which caused the cause of death. I suggest that we should be allowed to go further into the root of the whole matter.

(*Witness.*) The coroner who made the inquiry in that case allows the widest scope in inquiries. Mr. Smillie was there, and I think he was given as wide a scope as anyone, and I certainly had as wide a scope as I should ask for.

Digitized by Google

1145. (*Mr. Wm. Abraham.*) But the point is that the court itself in extreme cases like this should not itself be the final court?—As to the result, that might or might not be so, but in my opinion, as to the inquiry itself it was complete.

1146. (*Mr. F. L. Davis.*) I have only one general question to ask you. Two or three times in your evidence yesterday you referred to your having urged the miners' leaders to advise men not to work in places which are dangerous?—Yes; in addressing them, I think it would be very desirable that they should do so.

1147. You also said that you had given some advice of that kind to the miners' leaders to try and impress upon the men the necessity of looking after their own safety?—Yes.

1148. Do you think, or do you not think, that the miners' leaders might do a great deal in the direction of urging the men at their meetings to look after their own safety, and to be careful in carrying out the regulations?—I think it would be of very great assistance, and a great benefit would be derived from it, in my opinion.

1149. I say in deference to Mr. Abraham (and it is only fair that I should do so) that I know for a fact he himself has done that. But your object as an inspector is to try and make the mines and the working as safe as possible?—Yes.

1150. The object of the owners is that they should be so, and it should also be, and is, no doubt, the object of the men; so that we really can do a good deal by helping one another in that respect?—Yes; but I think that men in Mr. Abraham's position addressing them and drawing their attention to it in itself would not meet my views on the matter. It requires to be done locally—that is to say, by those who are their local leaders, and who would urge upon the men and, as it were, educate them, because there are a good many men who see the rules and get copies of the rules, but there it ends.

1151. (*Mr. Wm. Abraham.*) But would not that at once be considered as interfering with the management?—I do not think so. It could be done, in a manner, in support of the management.

1152. Yes, I can do so, but the workmen at the colliery cannot?—Of course it can be done in different ways; there are ways in which it could be done with a view to interfering with the management; at the same time it can also be done in a manner which would be an assistance to the management. There are two ways of doing the thing.

1153. (*Mr. F. L. Davis.*) My point was this—that in this inquiry stress was laid upon the question of discipline, as to which I am sure we all agree that in coal-mines good discipline is necessary. My point was that there was a certain amount of antagonism between the men and the managers, perhaps of a natural kind, and that if, from the men's side, the leaders could do something to impress upon the men the necessity of carrying out all these rules, the discipline would be better?—It must be done in a friendly way, not in an antagonistic way.

1154. (*Mr. Enoch Edwards.*) If you do not mind, we will direct ourselves to the latter part of this question which Mr. Abraham has been putting to you. Upon the two last explosions in Wales after the inquiry the Miners' Federation expressed themselves as dissatisfied with the juries' verdicts?—Both were outside my district.

1155. We were told by the witness from the Home Office that Mr. Ashton, Secretary of the Miners' Federation, was informed that they thought no good purpose would be served by holding the inquiry referred to, and they took that course upon the advice of the inspectors of the locality. You admitted to Mr. Abraham what is a perfectly natural thing, as everyone who knows anything about human nature will agree, that juries sometimes are influenced by local considerations?—Yes.

1156. Where such juries are influenced would it not be more likely that a verdict would be obtained in accordance with the evidence from a special court or experts?—Do you mean after the coroner's inquest, or is that to be part of the coroner's inquest?

1157. After the coroner's inquest?—You would then be getting two verdicts upon the same evidence, practically, and whether it would be any greater satisfaction to have got one than to have got the other of course I am not prepared to say.

Mr. J. S. Martin. 2 July 1906.

1158. When you gave your evidence you explained to the Commission somewhat the functions of inspectors?—Yes, I think I explained them fully.

1159. These are, I think, the words which you used in opening: "With regard to the colliery people, to assist them by advice, where this can be done, and is acceptable"?—Yes.

1160. Of course, where it is not acceptable you do not assist them?—No; I think we are liable then to get at loggerheads if it is a question of anything material. But that is not in cases of difficulty; that is in cases of breaches of the Act, or of things being contrary to the Act.

1161. You have advised colliery people who have not accepted your advice?—Not given in consultation.

1162. Did you not give advice to the colliery people in the case which has been referred to?—I drew their attention to certain things.

1163. And they did not take your advice?—Evidently they did not act upon it; they took the advice, but they did not act upon it.

1164. I think you said that there has been some difficulty between workmen and employers as to the introduction of lamps?—Yes.

1165. Do you remember the Llest explosion?—Yes, I remember it, but I do not remember the facts. It was not in my district. I remember that it was a matter of naked lights.

1166. Of course, it will be taken that I am not putting these questions to shield either one side or the other. It is a question as to safety in the pit, whether the opposition comes from the workmen or from the employers, and it is the duty of the State to see that the question of safety is attended to?—So far as I am concerned I hope I am as neutral as possible.

1167. In that case you gave advice which was not accepted?—Yes. I have known that done before now.

1168. But in the case Mr. Abraham referred to you gave advice which was not accepted?—Which was not acted upon.

1169. Several times Mr. Robson and Mr. Gray gave advice to the manager at Llest as to the introduction of lamps when the men had been burnt?—That I can give you instances of myself without going to Llest.

1170. There the advice was not accepted, and they had an explosion in which nineteen men were killed?—Yes, I believe so.

1171. There was a very strong feeling in the locality amongst the workmen against the introduction of lamps?—I cannot speak to that, but I would imagine it to be so.

1172. This was an inquiry which I attended with Mr. Pickard, and I know that there was very strong feeling on the part of the men. The jury is appointed from among those men in the locality?—The jury are not taken from workmen of the colliery.

1173. They are friends of the workmen?—Not from the colliery, because it would be illegal.

1174. Well, it was a jury of the locality. I remember the jury fairly well, and they felt very much in the same way as the men with regard to this question of lamps. Now, the point I wish to put to you, following your own suggestion, is this: Would it not be possible there to get a truer solution of that accident before a committee, say, of three mining experts, who would judge the case, rather than leave it to a jury who are prejudiced against the introduction of lamps?—I daresay it would.

1175. In the nature of things you think it would?—In the nature of things I should think it would.

1176. Of course, the mining experts should be men who are capable and competent. Three mining experts who understood their business would be more likely to arrive at a correct solution of that accident than a jury under those circumstances who are so prejudiced?—Yes; one would expect so. But at the same time sometimes an impartial person is not so likely to take a view

Digitized by Google

Mr. J. S Martin.

12 July 1906.

of his own. You might get the mining experts taking views of their own, be it on one side or on the other. You are liable to that sort of thing, because they would consider themselves expert, and they would form an opinion from their own experience sometimes outside the evidence—and, after all, it is only the evidence which ought to guide them.

1177. Of course, Mr. Robson and Mr. Gray and other experts would be human?—Yes—I am human.

1178. You would not be influenced by the question of lamps?—I do not know. I hold a very strong view with regard to lamps. I should say if you were going to put me to judge that question I should prefer someone else to be put to do it, because I hold very strong views on the subject of lamps.

1179. Yes, but where there is gas in mines you say there should be lamps?—I do. There are a great many people who think that I carry the question of lamps much too far.

1180. But surely not in these days?—They do. I can tell you of cases, for instance, in my own knowledge in the Manchester district where lamps were being introduced under gradual pressure from the inspector. The matter went on, and they were introducing them gradually, but very slowly; the men were very strongly against them, and the owners were not in favour of them. That was at Clifton Hall. There were others. Mr. Herbert Fletcher's Ladyshore Colliery was another; Unity Brook was another. Then you come down to South Wales, Llanerch; that was in my district about three years after I went there. I had been suggesting safety lamps there, but I could not move the men nor the masters, and there were, I think, 160 lives lost. At that inquiry the men still opposed it, and the evidence of men who were working in the mine and belonging to the mine was that it was quite safe to go and work there with naked lights again. So that it is not because we recommend a thing that we can always enforce it.

1181. So that you have no power to enforce your advice on the colliery?—Except where a specific danger is to be found; then you give notice, and then you must be prepared for arbitration. You must see, before you do it, that you think you can satisfy an arbitrator. I did do that in the case of the Cwmbran Colliery in 1891, and I had an arbitration there, and I carried it. That had a very satisfactory effect in putting lamps—they went in by thousands after that. You will see from the table which is set out in my report the number of lamps which went in after that, if you look at the figures. I referred to that when I was speaking about the accidents from falls, which were about the same number as they are at present. In 1875 there were 1,755 lamps, with a better quality of roof and stronger roof than at present in proportion to the output. I came into the district in 1887, when there were 5,900; then in 1891, the year of the arbitration, the number went up to 11,000. After that it was 12,000, 15,000, 18,000, 19,000, 21,000, 24,000, and now there are 34,000. So that that arbitration had a very beneficial effect. But I still try to get lamps put into places in which I cannot get them put in. People think I am extreme in my request.

1182. So that, according to the evidence which you have given, in any case where gas is found, or where there is a cap to indicate danger, you would require lamps to be used?—When I refer to the cap I refer to it in the case of the air current—the ventilating current is then inadequate, in my opinion. Of course, in a cavity in a place a very small quantity will explode in a lamp—it goes beyond a cap, but the cap I refer to as being in the air current.

1183. But in any case you consider it sufficient evidence, if gas is found time after time in a working, to insist upon lamps being used in the place of naked lights?—I should like to see it. That is my view.

1184. Do you think that the inspectors have now sufficient power to enforce their views?—Not in that respect, because before you attempt to do it you must have such a case that you are satisfied you can carry an arbitrator with you. You must be prepared to place evidence before an arbitrator which you are satisfied will carry him with you. He may not consider a small cap sufficient to indicate such a dangerous condition of things as to necessitate the stopping of a whole district of a mine, although I do.

1185. But having regard to what perhaps are more Christian and humane views of colliery proprietors in these days, is there not a greater willingness on their part to put lamps in if there is an indication of danger than there used to be?—There is not perhaps the same opposition, but I would refer to my reports year after year with reference to cases where gas is only occasionally found—where, for instance, slight burns occur, where I cannot get lamps adopted. I think in some of the districts you will find there are a large number of non-fatal explosions where they do not put safety lamps in.

1186. Small explosions?—Yes, non-fatal explosions.

1187. Have you any means of judging what proportion of the coal is got in working by safety lamps now in the kingdom?—I could not tell you that; I have no knowledge on the subject.

1188. There are practically whole counties where all the coal is got working by safety lamps?—I am afraid I cannot give you an answer; but I do not think it goes quite as far as that.

1189. (*Mr. Ratcliffe Ellis.*) Can you give the proportion in your own district?—The Forest of Dean use nothing but naked lights.

1190. (*Mr. Enoch Edwards.*) That is a very small district?—The output is about 1,000,000 tons. Somersetshire does not use them.

1191. In great places like Yorkshire they use nothing but safety lamps, do they?—I cannot tell you with regard to that district.

(*Chairman.*) We might get the information from the inspector for that district.

(*Mr. Enoch Edwards.*) Yes.

(*Witness.*) In Monmouthshire I should think there is more than three-quarters worked by safety lamp.

1192. (*Mr. Enoch Edwards.*) We may take it as fairly typical of the kingdom?—I am afraid I cannot answer that question.

1193. When I made a reference yesterday to this question it was suggested to me that it would cost so much money, but apparently the question of cost really has no bearing if you have three-quarters of the coal got to-day working by safety lamps, because in the case of that three-quarters they have to bear the cost of the lamps, whatever the cost may be?—The question of cost, of course, affects individual owners.

1194. Yes, that is the point?—You will have seen in my reports, if you have read back some of them, that that 7½ per cent. which is claimed in Monmouthshire is the stumbling block. That is a thing which I rather object to, simply on the ground that it interferes with my getting lamps in where I should like to.

1195. I think we may take it that three-quarters of the coal or more in the kingdom is got working by safety lamps. So that there is not much force in the point. Whatever question of cost there is in it, three-fourths of the people have had to pay that cost?—I do not know whether that is so or not, because in some cases they commence with them, and it would be assumed to be a cost to be included. But, as I say, I am not able to give you the information.

1196. We will get it from other inspectors. From my knowledge of mines generally, I should think I am rather under the amount than over it, and I think the use of safety lamps is almost universal; in many districts it is universal?—I have no doubt they have gone in very largely in the last 20 years.

1197. With reference to the question of the number of your visits as inspector Mr. Abraham has asked you some questions, and you have given a long explanation of what you consider to be the proper thing. The Miners' Federation have drafted a Bill, and in that Bill they deal with the question of inspections, and they have fixed the proportion of one inspector to 10,000 workmen. Do you think that is an unreasonable thing?—Yes.

1198. You think that it is not necessary to fix it?—No, and it is undesirable. You would have an inspector for half a dozen different collieries, and the result would be that the inspector would become so involved by going constantly to the place that he would become no longer a neutral authority, but would become implicated quite as much as the manager himself.

1199. In your opinion are there already sufficient inspectors?—I cannot speak for other districts. I am

Digitized by Google

satisfied with my own at present. It is perhaps rather hard work, but we get through it sufficiently. Of course, all quarries are not inspected, nor is it necessary, nor would one think of doing so.

1200. There is not the same element of danger in the case of quarries?—Well, I do not know. The number of persons killed is about the same in proportion; but there are a large number of very small ones which are worked for a month, say, in the year. We make an inspection sometimes, and we go to half a dozen of them that are not at work, and that have not been at work for months, and then months later they would be working again.

1201. I am not sure whether I understood you correctly when you said that you visited big collieries—a mine; does the term "mine" as you use it apply to a whole colliery and all the seams from which coal is raised, or only to one seam in it?—The whole colliery, so long as no part is worked separately.

1202. Of course, there are in many parts of the district five, six, seven, or eight seams worked?—That would be one big colliery if they are worked from a pair of shafts.

1203. So that when you have made an inspection of that mine you mean that you have inspected all the mines in it?—I use the word "mine" for all; you are using the word "mine" now instead of "seam."

1204. Yes?—The word "mine" means the whole colliery. I take a portion of that colliery and inspect it, and I take that as being a sample of the whole colliery. If the discipline in that district is satisfactory I assume it to be the same in others. As I have said, if you do otherwise, to be consistent in the argument, you must go there every day.

1205. I understood that you recommended, for reasons which you gave us, inspection by the workmen?—Yes. I should like to see inspection by the workmen in a great measure for the workmen's own satisfaction, because in having an inspection by their own selection and by their own men, I consider they are more satisfied than they are even with Government inspection.

1206. You said you would make those inspections by the workmen compulsory if you had your way?—Just once a year. My simple object is for the satisfaction of the workmen, that is all.

1207. Mr. Ellis was rather anxious to know from you how you would do it?—Well, that is a matter which would have to be worked out.

1208. Not only is it the opinion amongst ourselves in this country, but amongst the miners in our International Miners' Conference. The miners from Belgium and Germany are very strong on the point of this work of inspection, but the difficulty we seem to be in is as to who is going to pay for the work of inspection?—I do not think that is an insuperable difficulty. It is only a comparatively small amount once a year, and I do not think that the union would find any difficulty in acquiescing in that to the extent of once a year, at all events.

1209. Well, it might be quite as useful a way of spending money as having a big strike, might it not?—Quite—in some ways more than in others. But it might be that small mines should be exempted, where there are half a dozen men or 20 men employed; there might be exemptions made in that way.

1210. Of course, the reason sometimes for examination has been that there have been rumours in the locality that the pit was not safe?—In some cases they make examination without that—in most of the cases in my district the examinations are done without it. In some cases I think the check-weighman or the representative tells the men: "We want to make an inspection to-day." Perhaps once in three months, or some period of that sort, he will tell them when they come to the pit; in other cases they do it monthly, or nearly monthly, in other cases they do not do it so often. As I mentioned in my evidence-in-chief, that point is referred to in my reports, and I think I have given the dates and the pages of the reports.

1211. I gather from your observation that managers at some of the collieries are not free to manage on the best lines of safety that recommend themselves to their judgment?—Well, I do not know that I would go as far altogether as that—they have not got a free hand in management in some cases.

1212. Would that free hand refer to keeping open airways?—It would have an effect upon costs.

Mr. J. S. Martin.

12 July 1906

1213. And to the question of providing sufficient timbering?—No; the question of timbering does not come up. The only cases of shortness of timber that I am aware of have occurred in cases where the distribution was faulty or in bad weather, or for some reason or another, the stock has run short for a few days. But that complaint practically does not exist in my district; there is an ample supply of timber.

1214. Then how would the manager be denied a free hand if it does not affect those matters?—As to expenses, as a rule, perhaps in keeping roadways in the order in which they ought to be, or perhaps keeping airways or appointing the necessary number of officials—it is in various ways. I do not refer to any one particular point.

1215. It is a question of the cost of production as against the amount that should be spent upon supervision?—Yes; there is a certain amount of pressure put in that way, and the owners and agents take the management in their own hands a good deal in some cases, in the case of smaller mines.

1216. In the best-regulated collieries you would not find that obtain to a very great extent?—Very often there are managers, and there are agents over them who exercise perhaps desirable control—assistance, if you like, consulting, and so on; in that case the agents take direct responsibility.

1217. You brought before us this morning two copies of posters showing apologies by men. Is it common to find men agreeing to such a course in the colliery office as posting such bills in Monmouthshire?—I should think it was done 40 or 50 times last year. They get the choice whether they will go before the magistrates of whether they will agree to that. It is very often the case.

1218. Is that a legal remedy?—I do not think it is illegal; it is done by agreement. The managers are prepared to take them before the magistrates if they are not satisfied and if they object, and I suppose the men take the choice which they prefer. Managers do not care to be always going before magistrates, and to be always running to the police courts, and some prefer dealing with cases in this way, if they can do so, with a view of maintaining their discipline.

1219. Of course, there would be a possibility before a court, if a man has been heard before a stipendiary magistrate, of such a sentence being inflicted as a £1 fine taken from a man's wages. Might not that happen?—There must have been something special in that case; that is a large amount, as a rule.

1220. Do you think it is a good thing to dispense justice in that way in a colliery office?—I know that magistrates' clerks and magistrates remark that it is not a proper way. But you cannot have managers running constantly into police courts. They are taken away from their other work if they are going there; and, besides that, every case that goes before the magistrates raises a certain amount of friction.

1221. The whole question is one of discipline in the pit, is it not?—Yes, the whole question is with the object of maintaining discipline.

1222. That is to say, you would have great collieries which will never take men before a court, and never fine them; the discipline of the pit is such that it is not necessary?—No, I do not think you will find that is so—at least, that is the way in which they endeavour to prevent accidents taking place. As you see, for example, in one case here it is with regard to spragging; that is one of the serious sources of accidents at the face.

(*Mr. F. L. Davis.*) Is not this course of apologising and paying a sum the outcome of the men's desire, and not so much of the owner's desire? The men themselves prefer that course to going to a court, evidently.

(*Mr. Enoch Edwards.*) I was trying to get the information from the inspector. I do happen to know a colliery in which they do it, and it is not the men's desire there.

(*Witness.*) I presume they had the option; it could not be done unless they got the option, and agreed to it.

1223. (*Mr. F. L. Davis.*) They could not do it unless they agreed to it; the Truck Act would prevent that?

Digitized by Google

Mr. J. S. Martin. 12 July 1906.

—Another thing is that from the wording of it you will find they pay it into some fund; the money is not taken off at the office, but they pay it into something. And I say: "If you are going to do this kind of thing, get them to pay the money, and bring you a receipt showing you that they have done so; do not touch the money at all." That is my advice to the managers.

1224. (*Mr. Enoch Edwards.*) In the questions put to you by Mr. Ellis with regard to the use of naked lights, I think he suggested to you that naked lights were used in some parts of Lancashire, if I am not mistaken, 200 yards from the pit's shaft at collieries in which lamps are in use?—Yes; so there are in many places.

1225. Do you consider that a good thing?—I prefer when lamps are used about a mine their not going away from the shaft siding at the bottom of the downcast shaft. I do not know that it is a matter of danger in a main intake 200 yards away.

1226. That is assuming that the workings are a long way behind that 200 yards?—Yes; well, they soon get beyond that.

1227. What reason have you for suggesting that you would have road watered whether there were gassy seams in the mine or not? You said you would have all the main roads watered?—Because in the event of an explosion it would be liable to extend throughout the mine if the roads are dusty, just as it did at Courrières. If they were blasting in any place, for instance, and they ignited dust, it would be liable to extend all through the mine where it was a dusty road. Courrières is one of those instances. It was so in two explosions in my own district, where the dust theory was first proved; there had never been any gas found either at the Camerton Colliery or the Timsbury Colliery. There, in firing or blasting, both the explosions extended up to 1,500 yards away from the place, and there was no firedamp, where, after the explosion took place, in one case the explorers went in by the return airway with naked lights right up to the place, which shows that there was no gas connected with it.

1228. With that experience in your mind, why not water that dust?—I say do so.

1229. I understood you to say that the main roads should be watered whether there was gas or not. The danger of explosions from coal dust may arise as a serious one even although the main roads are watered, may it not?—No, I do not think so, if the main roads and haulage roads are watered. I should water the roadways, at any rate the headings.

1230. Do you mean the roadways right up to the face?—Well, nearly; not actually the faces themselves, but where they are dry and dusty and shot firing goes on I should water them, certainly.

1231. Mr. Ellis has put some questions with regard to plans and surveyors?—Yes.

1232. You stated that many of the plans were inaccurate?—I believe some to be inaccurate; indeed I believe a good many to be so, judging by what has occurred in various places where accidents have happened.

1233. I suppose we may take it that there is a large quantity of coal being mined now where large quantities of water have accumulated in the coalfield?—That is so in some cases. I do not think that I have many cases in my district—not near or approaching.

1234. We have had some rather serious disasters, as you are aware, in consequence of large quantities of water breaking in?—Yes, I had one case myself, namely, an accident in the Forest of Dean, about five or six years ago.

1235. That may arise almost solely from the fact that the plans are misleading?—The accident I speak of did arise from that.

1236. (*Dr. Haldane.*) Have you any opinion as to whether a standard of ventilation with a view to keeping down excessive temperature in mines is desirable? Have you considered that?—It is desirable, certainly; but I have directed myself more particularly to the question of the gas, on the principle that if that is kept sufficiently free the other points will be met, as a rule.

1237. I think you can point to a mine in which you would say that there ought to be such a standard?—I quite agree with you there are mines where there ought to be a standard with regard to the keeping down of the temperature.

1238. Have you seen any examples of coal mines where the temperature is so high that the work is impeded?—I remember being told that in one coal mine the temperature went up to 105 degrees, I think it was, and by reversing the air they reduced the temperature by 20 degrees.

1239. Was the work impeded there by that temperature? Of course it might be dry air, in which case it would not be a very excessive temperature?—Yes, it was fairly dry air; but I remember being struck by the amount of difference that merely the alteration of the ventilation made, a difference of 20 degrees.

1240. We have to consider metalliferous mines also?—Of course, if you go into metalliferous mines—that is to say, non-fiery mines, then it is desirable to increase the ventilation with a view to reducing temperature.

1241. I suppose you know metalliferous mines in your district where the temperature is very excessive?—Yes, there are some.

1242. In which it is very difficult to work?—I do know some, and I have a strong recollection of it; but I believe there were hotter mines down in the west which were worked years ago, in which the men could only work for 20 minutes at a time; it was hot water, I think, which caused the high temperature in that case.

1243. I think you are familiar with the conditions in German mines, or at any rate you are more familiar with them than most of us are?—I have been familiar with their conditions in former years, but latterly perhaps not so.

1244. I think it is the case that safety catches are compulsory in the German mines, is it not?—They were compulsory in my time, and I believe they are so still. In Westphalia they were compulsory, and I believe in the Dortmund Bergamt district they are compulsory. It is also stated in my report in Part II. of the General Report for 1902, where I have given the statistics, that in some of the Bergamt districts it is not compulsory, and I think in some of the other countries—for instance, Saxony—it is not compulsory. I am speaking now from memory, and I cannot be sure, but you will find it mentioned in the report. In some of those countries it is not compulsory.

1245. Can you tell us whether the number of accidents in those countries is greater or less than in this country where safety catches have never been used, or practically never used?—Do you mean the number of accidents from falling away in shafts?

1246. Yes?—I cannot tell you, but the number of cases is given in which it acted, the number of cases in which it failed to act, and the number of cases in which it came about unexpectedly, I think—where it acted when it should not have acted. I think you will find that information is given.

1247. Is that a report which we have?—It is one of the General Reports which was made about three years ago. Mr. Cunynghame had it put in the General Report instead of in my report.

1248. I have not seen it. That gives all these data, I understand?—Yes.

1249. In all those cases there are wooden guides?—Yes; wires ropes are not much used at present out there, I think.

1250. No, they cannot be used, because of the legislation with regard to safety catches, is that not so?—That is so in some Bergamt districts; in other Bergamt districts they do not make it compulsory.

1251. (*Chairman.*) You say you object to the Miners' Federation Bill on the ground that it would lead to too much inspection, and that too much inspection would implicate the inspectors to too great an extent in the management of mines. I suppose your suggestion is that the management might reasonably object to such a course as that, because they would have an enormous number of inspectors constantly down the mine?—That is the practice in Germany, I think.

1252. Is it the practice there to have such a number of inspectors?—Yes, there is one inspector for every 10,000 persons employed, I think.

1253. What is your experience of that?—I think it has been introduced since my time there. I am afraid I cannot speak from much experience, but I think the owners or the managers take the view that the inspec-

Digitized by Google

tors become very nearly as much implicated as the managers themselves.

1254. You do not know from personal experience how it is worked in Germany?—No, it is too many years ago since I was there. But I was told by general managers from some of the collieries that it was undesirable from that point of view.

1255. With regard to the question of plans, I see that under Section 34, Sub-section 3, of the Coal Mines Regulation Act you have the power to require exact plans to be made, and to call upon the mineowners, agents, and managers to make correct plans. Have you ever exercised that power?—I have only had a colliery surveyed on one occasion myself.

1256. You have insisted upon making a survey yourself on one occasion?—I have had a check survey made.

1257. Did you find in that case that the plan was correct?—No; it was wrong, and the manager was fined for it.

1258. That is the only occasion on which you have exercised that power?—That is the only occasion on which I have had a check survey made on the part of the Government.

1259. Why was that done? Were you not sufficiently sure of your ground in other cases where you had reason to suspect that the plans were not accurate?—Well, in most cases they have been as the result of accidents.

1260. You mean you have discovered, as the result of accidents, that the plans have been incorrect?—Yes. I have known cases where the owners have had check surveys made, and I have known that they have found the plans to be incorrect; it is said that they were not very much out, but still not correct.

1261. When you found, upon an accident having occurred, it was not at all an uncommon thing for a plan to be faulty, did you not consider that you were justified in going round to the various mineowners and asking them to have their plans checked, or do something which would show the plans to be correct?—They hold them to be correct.

1262. They said they were correct?—They hold them to be so—they assume them to be correct.

1263. Yes, but you had experience to the contrary—that whenever an accident occurred it was a common thing to find the plans were incorrect?—It was generally in cases of inundation that they proved so.

1264. Such occasions would be occacions when the correctness would naturally be inquired into?—And it would at times be incorrectness as to the working of the colliery itself, and sometimes incorrectness of the older plans.

1265. Then you did not consider yourself justified in asking the mineowners to check their plans more than on one occasion?—I did not get them to check it, but I had it checked by a surveyor appointed by the Secretary of State.

1266. But is there no means of compelling a mineowner to verify in some way the plans of his mine which he shows to you?—I do not think there is any way of compelling him, unless I had grounds to consider that I was justified in making the absolute statement that a specific plan was incorrect.

1267. But supposing you went to a mineowner, and said to him: "All these various accidents have occurred from flooding, and on various occasions I have discovered that the plans which the mineowners say are correct are in point of fact incorrect, and I am not satisfied with regard to your plans. Do you not think it would be advisable that you should take some steps to see that your plans are correct?" Do you think that the mineowner would object? What would they answer to that?—They would say: "We do check them in a certain way." They point out certain checks that are made, but they do not inform me exactly what differences they have found. They generally take them to be correct, and represent them to be correct.

1268. Then in point of fact you have really no means of ascertaining whether the plans which are shown you by mineowners are correct or incorrect?—No.

1269. And your suspicion, which is confirmed by your experience after accidents by inundation, is that a number of them are incorrect?—Yes. I am not satisfied that the surveyors are experienced enough.

1270. Even although you are not satisfied as to that, there is no means of obtaining any inquiry which would enable you to find out whether your suspicions were justified or not?—It does not present itself to me that there is. Of course I can ask the Secretary of State, but then I do not know that the Secretary of State has absolute power to send a surveyor underground unless he appoints him as an inspector.

1271. You could yourself, as an inspector, go down and verify the plans so far as you were able to do so?—Well, I would not undertake to do that work as a surveyor.

1272. No, but could you employ any qualified surveyor to do it?—No.

1273. You could just do it yourself?—An inspector can do it. The Secretary of State has no power to send anybody except an inspector or assistant inspector underground except by permission of the owner.

1274. And the inspector has no power to send anybody underground except an assistant inspector?—No.

1275. You could ask your assistant-inspector to make an examination of the mine underground, I suppose?—Yes.

1276. Are assistant-inspectors qualified to make examinations as surveyors?—Yes, some of them are; but of course they do not keep up that sort of work, and after a number of years I should not be satisfied that that would be satisfactory.

1277. With regard to your assistants, have you designated certain stations at which they shall live in the district, or have you allowed them to please themselves as to where they should live?—I have recommended to the Secretary of State where they should live in my district—as to where their centres should be—subject to alteration at any time at the recommendation of the Secretary of State. The Secretary of State can require us to live at any place he likes; we have to get his permission to fix our centres.

1278. Do you assign any special duties to one or other of those assistants?—No; I give him certain instructions and I send him reports of accidents.

1279. You are constantly in touch with him?—Yes, daily by post. I receive daily reports from them.

1280. With regard to watering of the roadways in dry and dusty mines, who would decide as to whether the mine was sufficiently dry and dusty for watering to be insisted upon? Supposing there was a new general rule made that watering should take place in dry and dusty mines, who would be the arbiter as to that?—I suppose the wording would be that they should have to be kept damp, or something of that description.

1281. Do you mean to the satisfaction of the inspector, or something of that sort?—No; this, as in many other cases, would remain open to decision, and would have to go before the magistrate, I suppose, for proof.

1282. With regard to miss-fire shots there seem to be no definite regulations, or, at all events, no uniformity as to the practice which obtains in the case of a shot missing fire. Mr. Ellis has handed me a print of the special rules agreed to between the Parliamentary Committee of the South Lancashire and Cheshire Coal Association, H.M. Inspector of Mines, and representatives of the Lancashire Miners' Federation, established in 1902, of which Rule No. 16 is as follows:—"No missed shots shall be unrammed; in all such cases a fresh hole shall be drilled, which shall not be within 12 inches of any hole which has missed fire, and shall as far as practicable be parallel with it. Should the missed shot contain a detonator, the shot-lighter shall, before firing the fresh hole, attach a string to the fuse of the missed shot, and secure it to a prop or to the cable. Immediately after firing, the shot-lighter shall, with his hands only and with the greatest care, search the coal or stone, and if he fails to find the detonator, or is not satisfied that it has been exploded by the second shot, he shall cause the coal or stone to be loaded with the greatest care, and sent to the surface for further examination. Should the missed shot not be dislodged, further holes must be drilled and fired until this is effected. He shall report the circumstances to the under-manager with-

Digitized by Google

Mr. J. S. F. Martin.

12 July 1906.

out any delay, and hand the detonator to him when found." Do you think that some such rule as that might very well be made a general rule applying to all mines? Do you suggest that it would be a reasonable rule to apply to all mines?—I think when I framed my special rules the year before last it was objected to to some extent.

1283. It was objected to in your Special Rules?—Yes. If I remember correctly, some of the owners objected to it.

1284. Was it very much to the same effect as the rule which I have read?—Something to that effect—that somebody should find the detonator.

1285. At all events, you suggested a special rule as to miss-fire shots, which was objected to by the mine owners of your district?—In part—that is to say, part of the rule. I forget what the exact words are of the existing rule.

1286. However, do you think that any general rule can be laid down as to miss-fire shots which ought to obtain throughout the length and breadth of the kingdom as regards coal mines?—The recovering of the detonators is desirable. If you put a person on to break up the coal, and he strikes the detonator, off it goes and creates a danger; such was the argument of the owners.

1287. With regard to the unramming of shots, do you think it ought to be a general rule that miss-fire shots should not be unrammed?—It is a general rule.

1288. With regard to examinations, I see that in some districts there are many candidates and in others there are comparatively few, and there is a great difference between the number of candidates who come forward for examination in the various districts. Can you explain that at all?—Unless there is a difference in the standards, I cannot explain it. There are 12 different standards at the present time for managers' and under-managers' certificates, and if one is easier than another, or is supposed to be easier than another, the larger number will flock to it.

1289. I suppose you would imagine the reason is that it is generally supposed that in those districts which are most popular and to which candidates flock most the examination is easy?—Easier than in the others. I should say that would be so.

1290. Do you think there ought to be special questions put for special districts, or do you think that a Central Board might be set up, and that everybody should submit to exactly the same examination?—I think that a Central Board of Examiners should be set up to hold the examinations. In that way only can it be expected that there should be uniformity in the value of the certificates.

1291. Then should they take any account of the varying circumstances of the districts, or should they have the same examination throughout the length and breadth of the land?—I should say the same examination. It would be a general qualification, as the certificate is a general one.

1292. The certificate being general, you think the examination ought to be the same?—Yes.

1293. Do you think the certificate ought to be general, or do you think it ought to be divided up, and that there should be a certificate, for instance, for fiery mines, and so on?—That would necessitate a manager going in for examination in each district if he wanted to change from one to the other. I think that would be rather impracticable. I do not think that there are such differences in the question of mining in different districts that there might not be a general examination.

1294. I observe that in a great many cases the examination papers are published in the reports of the various inspectors, and sometimes, as I am told, they are not published?—Mine have been reported for the last 16 or 17 years.

1295. Do you think that the examination papers ought to be published?—I see no reason why they should not be. I think it is desirable.

1296. I see that if you did not have special examinations in special districts you would have to repeal Subsection 2 of Section 24 of the Coal Mines Regulation Act, because there it is distinctly laid down that: "Each Board shall from time to time appoint examiners, not being members of the Board, except with the consent of the Secretary of State, to conduct the examinations, in the part of the United Kingdom for which the Board acts, of applicants for certificates of competency under this Act, and may from time to time make, alter, and revoke rules as to the conduct of such examinations and the qualifications of the applicants, so, however, that in every such examination regard shall be had to such knowledge as is necessary for the practical working of mines in that part of the United Kingdom"?—I should revoke that.

1297. It would mean legislation?—It certainly means legislation. That was framed in 1872, and, as I read it, at that time it must have been intended to have had certificates for each district; and then subsequently within the first year or so it was found that that would not work, or something or another, and the certificates were made available throughout the country.

1298. When a man brings his certificate, does the certificate show where he has been examined, or are all certificates in one common form?—They are on one common form, I believe, but I really could not tell you for certain.

1299. It has been suggested to me by Mr. Ellis that perhaps it might meet your view if the certificate did state where the examination took place, and in what district the candidate was qualified?—No, that would not meet my view, because the certificate still runs throughout the kingdom.

1300. Exactly. The difference would be that in one case the mineowner who proposed to employ the certificate-holder would know exactly what his certificate was worth, and in the other case, if he merely brought the common form certificate he would not know what it was worth, because it might have been given him in any district?—He would know in any case where his experience has been gained.

1301. Yes, naturally, because he would ask him questions. The first question he would ask would be: "Where did you get your certificate?—Yes. The effect of a certificate is really little more than saying that a man has passed an examination, and that he is available under the Act to take charge; that is the value of a certificate, and very little more, in my opinion.

Digitized by Google

FIFTH DAY.

Wednesday, 25th July 1906.

PRESENT:

LORD MONKSWELL (*Chairman*).
H. H. S. CUNYNGHAME, Esq., C.B.
WM. ABRAHAM, Esq., M.P. (Rhondda).
F. L. DAVIS, Esq.
ENOCH EDWARDS, Esq., M.P.
THOMAS RATCLIFFE ELLIS, Esq.
JOHN SCOTT HALDANE, Esq., F.R.S.

S. W. HARRIS, Esq. (*Secretary*).

Mr. HENRY HALL, I.S.O., called and examined.

Mr. H Hall.
25 July 1906.

1302. (*Chairman.*) You are one of the inspectors of mines?—Yes.

1303. What is your district?—It is called the Liverpool district. It includes West Lancashire, and the counties of North Wales, and Cheshire.

1304. That is No. 7 on the printed list of districts?—Yes.

1305. Have you read Mr. Martin's evidence?—Yes.

1306. Do you wish to add anything to what he has stated, or to make a statement of your own about the duties of an inspector of mines? You know he gave his version of what he considered to be the duties of an inspector of mines. If you have nothing to add or to qualify, we might take it that those are, in your opinion, the duties of an inspector?—Generally they are. I do not know whether he mentioned the fact that a special duty of an inspector, as I think, is to try to get the managers to practise a high standard of management. I think that is perhaps the most important of any.

1307. Is there anything else you wish to add to Mr. Martin's statement as regards the duties of an inspector?—I think he mentions everything, my Lord. We have to treat matters confidentially, and to be courteous to everybody that we have dealings with.

1308. With regard to the distribution of inspectorship districts, have you any observations to make?—No; I think that one district, so far as the mining is concerned, is very similar to another, with, perhaps, the exception of the Forest of Dean.

1309. Then you would agree with Mr. Martin that, excepting metalliferous mines, and only taking coal mines, the characteristics of all the districts are what he calls practically the same?—Yes, I agree with him.

1310. With the exception of the Forest of Dean?—And perhaps in South Staffordshire it is a little different. Where the thick coal is it requires some special kind of knowledge.

1311. Would you tell the Commission something about your work, how many inquests you attend, and what proceedings you have taken under the Acts of Parliament?—We now state in our annual report the number of inspections that we make. I find I made last year personally 93 underground inspections; my assistant, Mr. Matthews, made 191—that is including metalliferous mines—but there were only five that he inspected among the metalliferous mines, so that he had 186 inspections of coal mines underground. The other two men who are assisting are not coal-mine inspectors at all; their time is entirely devoted to quarries and metalliferous mines. There were 91 inquests as regards coal-mining accidents, and 20 or 30, I should suppose, among the quarries and metalliferous mines.

1312. Do you make a point of attending inquests yourself, or do you think that is unnecessary? Do you consider that your duty is sufficiently discharged if either you or Mr. Matthews goes to an inquest?—The position is this—that Mr. Matthews and I take the collieries; we, as it were, divide the inspections according to our time. If I happen to have inspected in the case of a fatal accident, I attend that inquest; if he happens to have inspected, he attends the inquest. Sometimes, but very seldom, we both attend—if it is anything very important.

1313. With regard to your clerical work, do you consider that that work interferes in any way with your work of inspection?—It takes up considerable time. In my case perhaps it takes up more time than with some of the other inspectors, because we have so many quarries, and a great many metalliferous mines situated at long distances, and there is a great deal of correspondence passing between myself and the two men who are working the quarries and the metalliferous mines. That takes up considerable time; in fact, there is very much more correspondence in reference to the quarries and metalliferous mines than there is in reference to coal mines. It takes up a good deal of time, no doubt, but it could only be mended. I think, by each district inspector having an office where he could always have one or other of his assistants in attendance in their turns, I think, so that they would become acquainted with what was going on. I do not think it is advisable to have an outsider as a clerk; I think it would be far better to have one of the assistants.

1314. What clerical assistance have you in answering letters?—The way in which I do it is this: Mr. Matthews keeps the statistics for the coal mines, and Mr. Williams (one of the quarry inspectors) keeps the statistics for the quarries and the metalliferous mines, but I have to do the chief part of the correspondence—I mean writing to owners, correspondence as to complaints, and so on. If the assistants write letters, they send them on to me so that I may see what they are going to say.

1315. Have you a clerk or a secretary who can help you in your correspondence?—No, I have not. I have an allowance of £25. When I am away from home my wife answers all telegrams and acknowledges notices of accidents that come—just the formal kind of thing.

1316. Then you do not employ that £25 in obtaining the services of a secretary?—No; I think the £25 was chiefly allowed to pay for a room in one's house where one had to do the work, as part of the rent.

1317. You have an extra room?—Yes, one always has to set apart a room.

1318. Do you think that it would enable you to perform your duties of inspection more thoroughly if you had clerical help?—I think it would, if the help was from one of the assistants; of course it would also assist if I had an outside clerk, no doubt. But it is a matter that I would not press, because one cannot be always inspecting underground. It is quite impossible; there must be relief of some sort.

1319. So that, on the whole, you think that even if you had further clerical help you would not be able

Digitized by Google

Mr. H. Hall. 25 July 1906.

to do a great deal more work underground than you do?—Well, I don't think so. It would, however, relieve the assistant-inspectors.

1320. Then is your suggestion that the assistant-inspectors should have some kind of clerical assistance?—No.

1321. What do you propose?—I do not press the matter at all, but I suggest that the better plan would be, as I have already said, for each district inspector to have an office away from his house, but in some convenient place; for instance, I should say in my own case at Wigan or Liverpool.

1322. An office means, I suppose, somebody to attend to the office?—Then I would bring there each of the assistants alternately for two months, so that they might get acquainted with what was going on. If they never see any correspondence they never seem to me to learn their profession properly.

1323. Then you consider that your assistants have not been well instructed in the matter of dealing with correspondence?—Well, they might have better opportunities, I think.

1324. And you would suggest that they should be given that opportunity by taking them away from their inspection duties for a month or two at a time, and putting them into an office so as to learn office work?—Yes, but they would not spend their whole day in the office. I would so contrive that they would have inspections somewhere within reach which they could do during that month. They would have to spend two or three hours in the office, say, every day, and then take some of the nearer collieries or nearer mines where they could spend the rest of the time.

1325. But as regards the necessary correspondence which they have with you and with other people, why should they not be able to carry on that correspondence in their own homes?—Well, they can, but the chief part of it, at any rate, would have to come on to me, or else I should never know what they were saying.

1326. Why should it not come on to you? I mean, how could it come on to you more if they had an office than if they wrote it from their homes?—I should be constantly at the office off and on to see what was going on.

1327. You mean you would be constantly attending at your assistants' office. Would you have the same office for all three assistants?—Yes.

1328. You would go and write your letters at the office, and they would go and write their letters?—Generally—not always; but the office would serve me and it would serve them; that is what I mean.

1329. Where would these assistants of yours live? They would have to live near the office, I suppose?—Yes, during the time that they were on duty there.

1330. Then I suppose if you have an office you must have somebody on duty always there, and that would mean that these three assistants of yours would have on the average to spend four months in every year at or near the office?—Yes, I think they have some similar arrangement in the Explosives Department; I think they go out three months inspecting and then they spend the next three months in London—some arrangement of that kind.

1331. Do you wish to say anything more on the subject of clerical assistance?—I think not.

1332. Now with regard to the preparation of the statistics; would you desire to continue to be responsible for the preparation of the statistics, or would you rather that that was done from headquarters, by the Home Office?—It would save us a good deal of trouble no doubt if it were done by the Home Office, but that would have its disadvantages; if it were all done at the Home Office one would lose touch with certain things which one ought to know. I think that is very much the case.

1333. Then you would be inclined to agree with Mr. Martin, who said that he preferred being responsible for the statistics himself?—Yes.

1334. With regard to electrical assistance in connection with the electricity rules, have you anything to say?—I think all that is necessary is that we should have the opportunity, if we think it desirable, to call in Mr. Ram at any time to inspect, along with the Mines Inspector, in any difficult case.

1335. (*Mr. F. L. Davis.*) For expert advice?—Yes.

1336. *Chairman.*) Mr. Martin suggested that he would like to have an assistant, or perhaps two assistants, who had passed an electrical examination. Do you think that is desirable?—I think it is desirable to require candidates for the appointment, now that electricity has come so much to the front, to know something of the subject.

1337. That is so at present, I think, is it not?—I believe it is so now.

1338. With regard to General Rule 38, as to the inspection by a person appointed by the miners themselves, is that a power which is much exercised in your district?—No, it is not exercised at all, one may say. I have only one colliery in which for two or three years recently they made an examination either once or twice a year.

1339. In one colliery they make an examination once or twice a year?—Yes.

1340. That is the whole of the inspection under Rule 38 which goes on in your district?—At present there is none; it has been given up; in that particular case they have given it up. I may mention that in that particular case it occupied the two men 22 days, starting at 6 o'clock in the morning and ending at 2 in the afternoon, to inspect the collieries of one firm, which consisted of two collieries employing about 2,000 odd men, I should say. So that it would be quite impossible to inspect once a month.

1341. I suppose that would rather depend upon what you mean by "inspection"; it might be impossible to inspect every hole and corner of the colliery once a month, but supposing attention had been particularly drawn to a dangerous place in the colliery, it would be perhaps possible for men to go over certain portions of the colliery once a month?—Oh, yes. The men, when they do start to inspect, do it thoroughly, I must say. They go into everyhole and corner.

1342. And you think that is a good thing?—I have no great objection to it so long as it does not occur too often. I think if it occurs too often it takes away the responsibility of the officials.

1343. What would you call "too often"?—Well, once a month would certainly be far too often.

1344. How often would you suggest it should be desirable that the men should exercise this power?—Once or twice a year.

1345. Do you think it would be a good thing if they did exercise this power in all collieries once or twice a year?—I do not think it would do any harm, but I am certainly not strongly in favour of it.

1346. You have had no experience practically of inspection in your district, so that I suppose you can hardly say that you are much of an authority as to whether the inspection does much good or not?—No, perhaps not, but what I am afraid of is the responsibility being put on to the men instead of being put on to the responsible managers.

1347. Do you think that is a necessary consequence?—Almost absolutely, I think.

1348. Do you wish to say anything more about Rule 38 and inspections under it?—No, I think not.

1349. With regard to discipline and supervision of the mines by the owners, that discipline and supervision is sometimes enforced by prosecutions and sometimes by fines. What have you to say as to the respective merits of fining and prosecutions?—I think it would have the best effect if it were practicable to prosecute in all cases, but I do not think it is practicable; and not being able to prosecute in all cases, you are bound to take some other course, and I think with regard to fining, where it is reasonably done, there is no great objection to it. I take a typical case or two, and I find that at a colliery in one year they will fine perhaps 80 or 100 times, or perhaps more, and they will prosecute five or six times. If they had to prosecute in anything like all the cases that they now fine for, it would be out of the question—the manager and his officials would always be at the Police Courts instead of being at the mine.

1350. What do you mean by not being able to prosecute; do you mean that the prosecutions would be so very numerous that practically it would be almost absurd to prosecute in every case; or what is your meaning when you say they would not be able to prosecute?—I mean, supposing they had to prosecute 50

Digitized by Google

times at one colliery, that would mean on the average two days in every week that the manager would have to be at the Police Court, and some of his officials as well. Well, that would be a most undesirable state of things.

1351. You think it would be impracticable?—Yes.

1352. There would be such difficulties in the practice of carrying out such a system of prosecution in every case that it could not possibly be done?—It could not possibly be done. There are so many rules of the collieries that they are liable to break, and some notice must be taken of it.

1353. Have you had your attention called to a statement which has been made that in some districts, at all events, the Miners' Union pay for the defence of men who are prosecuted for breaches of Rules?—My attention has been called to it informally, but I have never heard any complaint about it.

1354. Does it occur in your district?—I believe it is the practice that the Union sends a solicitor to defend the men, but I should think the Union does not pay the fines. Really, personally I do not see very much objection; in fact, I think the Union ought to send somebody to defend their men, so that both sides should be fairly heard, but they certainly ought not to pay the fines.

1355. Then you of your own personal knowledge do not know whether that action of the Union is only taken in cases where there is a fair prospect of a good defence being made, or whether it is taken in all cases, however flagrant the breach may be?—It is only taken in some cases, I suppose where the man represents that he is being badly used, or where he seems to be badly used. I have a suggestion to make with regard to fines, namely, that in every case the fines should be handed over to some club to be selected by the men themselves.

1356. Do you wish to say anything more about prosecutions?—No.

1357. Now we come to Rule 4. Do you think it works satisfactorily; do you think that the inspections are thorough, and that they take place as often as they should take place?—The Act of Parliament itself only requires one examination in the course of a shift. The practice in Lancashire is, very largely, almost universally, that one or other of the officials visit twice in a shift, and I think it would be an improvement if two visits were made obligatory instead of leaving a second one voluntary, so as to bring those who were not willing to make two up to the same standard of practice as the others.

1358. Do you think that the districts as mapped out at present are a reasonable size?—I have no reason to think otherwise. I have examined some plans recently with a view of answering that question, and I find that the number of working places which a man has to inspect in what they call the morning examination varies between 20 and 40; 40 seems to be the limit of what he can do, assuming that all those 40 places are fairly situated in the same range. But when he has to go from one part of a mine in *that* direction and to another in *this* direction, and so on 20 working places would be as much as he could manage. I have not found in any case that the man had really more places to look round than he could within the three hours. In Lancashire I think it is three hours, and I fancy in Mr. Martin's district it is two or two and a half hours. I have no fault to find with the present system. I think their examinations are fairly satisfactory; they have to put up a mark in each of the working places, and to put up the day of the month, so that they are bound to go to them all.

1359. Have you anything more to say with regard to Rule 4?—I think not.

1360. A question of considerable difficulty has arisen, and has been several times before the Law Courts in connection with the responsibility of the owner of a mine where he employs a manager. Have you known any of those cases?—I am fairly familiar with them. I have not read them recently.

1361. Is there anything that occurs to you to say on that subject?—My impression is that it would be far better to take the certificated manager out of the category in the exoneration clause where he is placed along with the owner and agent. I think we ought to expect from him something much more personal in the supervision of the colliery and much more responsible than would be the case with the owner or agent. I think his responsibility should be treated alone, and that before he could clear himself he should be required to show that he had exercised reasonable personal supervision over the mine, and so on, and that it is not sufficient for him to prove just casually that he has put up the rules, and so on, which does not mean very much, and that he has done his best to enforce the rules. I think he should be called upon to show that he has taken a certain personal action in the matter, and that he has exercised reasonable supervision.

1362. That is the case of a certificated manager?—Yes.

1363. But I was rather thinking of how far the action of the owner of a mine employing a certificated manager would relieve him of responsibility for anything that happened in the mine?—Well, the magistrates all seem to take a different view on the subject; some are down upon the owner at once, and others will not convict the owner if they can avoid it. The law is not very clear, as you know; some take one course, and some take another.

1364. Have you any suggestions as to making the law clearer, or any suggestion for amending Section 50?—If you did alter it—of course, I only throw this out as a suggestion—you should call upon the owner to prove that he has given every facility to the manager to carry on the mine in accordance with the regulations of the Act of Parliament. I should alter those words a little somehow so as to get a better hold of him.

1365. (*Mr. Ratcliffe Ellis.*) Have you the words of the Act before you? Perhaps you would like to see them?—I know pretty well what the words are.

1366. They are "that he has taken all reasonable means." That would include not only the appointment of a manager, but giving the manager facilities to do the work?—Yes, but we want the owner to be responsible for supplying everything that is necessary.

1367. You want to define what shall be the "reasonable means"?—That is where it fails, as a rule; at least, I think it is the only complaint that an inspector would bring against him. We do not want the owner to inspect the mine himself, or anything of that sort, so long as he has a certificated manager.

1368. (*Chairman.*) Your complaint would rather be that some judges and some magistrates put one interpretation upon "reasonable means," and some other judges and other magistrates put a different interpretation upon those words?—That is so.

1369. Have you anything more to say about responsibility of owners and agents?—No, except to repeat that I think a certificated manager should be dealt with separately from the owner and agent in the exoneration clause.

1370. That, although the owner and agent might be exonerated by employing the certificated manager, if the certificated manager in any way fails in his duty he himself should be personally liable?—Yes—should be convicted.

1371. Now, with regard to accidents, first of all from explosions, what do you say about that? They are decreasing in your district, I think?—Yes, in my district there has not been a fatal explosion during the last three years, nor up to now, which is 3½ years; so that the number of them is coming down, I think, to almost nothing.

1372. I see that, according to page 10 of your report, there have been two non-fatal accidents in the last year, by which four people were injured, and both of those non-fatal accidents occurred through shot-firing?—Yes.

1373. We will come to the special question of shot-firing presently. In your district, with regard to explosions you are in a very excellent position, and that has lasted for two or three years; you have had no fatal accident for two or three years. Before that time did you have many fatal accidents?—I think a list of the fatal explosions in my district since 1872 appears in my report, and it has been a gradually decreasing number.

1374. To what do you attribute that gradual diminution?—Chiefly to the universal use of lamps and the very nearly universal use of permitted explosives. But there has been a great decrease in all the other dis-

Digitized by Google

Mr. H. Holl.
25 July 1906.

tricts as well with regard to explosions. I think in the last ten years the number per annum has dropped down to about 60 throughout the country, whereas in the previous 10 years I think it was about 170 per annum, and in the previous 10 years to that it dropped considerably. That was before the introduction of the permitted explosives. But there has been a tremendous reduction since the permitted explosives came into operation.

1375. With regard to permitted explosives, I notice that bobbinite has been given a bad character. Is bobbinite employed in your district?—Yes, to some extent

1376. I understand that every explosion which occurred in a case in which permitted explosives were employed occurred where bobbinite was employed?—In the year 1905 I think that is so.

1377. Yes, last year. What have you to say about bobbinite?—There is an inquiry going on about bobbinite at the present time, at which I have given evidence.

1378. You have nothing to tell us about it. I know there is an inquiry going on, and probably the Commission will await the results of that inquiry?—I have nothing to say, except that I do not like it. I am opposed to it because when you try it experimentally it gives off so much flame, and the experience with it has been very bad, no doubt. In my own mind I look upon it as being very much the same as gunpowder, and almost as dangerous, if not as dangerous, because when one is using gunpowder one knows what is going to happen if there is any gas present, but with bobbinite one expects it to be fairly safe; but every now and again it disappoints people.

1379. Then you would say that it ought to be taken off the list of permitted explosives?—If it is continuing this year to cause a similar number of accidents, I think the sooner it is taken off the list the better. But I am not aware whether that is so or not.

1380. At present you are not prepared to give a decided opinion as to whether bobbinite ought to be or ought not to be on the list of permitted explosives. I take it that is so?—Personally I would take it off, because I am afraid that if we do not take it off it will take itself off one of these days.

1381. Then you think that the two causes of the gradual decrease of fatal accidents from explosions is the permitted explosives and the safety lamps?—Yes; and I add to that, of course, that there is no doubt the mines nowadays have much more air sent round them than they had in past times, by means of large fans.

1382. Then the third reason is that the ventilation is better?—Yes.

1383. We will come to the question of ventilation in a moment. You have not mentioned the subject of watering. Do you think that the efficient watering of mines, or the amount of watering which now goes on (which is, I believe, much greater than used to be the case), has had any great effect in diminishing the number of fatal accidents from explosions?—I think it may, but watering is by no means general. It is practised perhaps more largely in South Wales than anywhere else, and Yorkshire. It is difficult to say that it has had any effect, but we may assume, I think, that it has had some effect.

1384. Have you had any experience of the effect of watering in any of your mines?—Yes; we have watered at times.

1385. When you fire a shot you are obliged to water within 20 yards of the place, are you not?—That only applies to what they call the haulage roads, the main roads. If you fire a shot on a main road more than 100 yards back from the face, you are obliged to water. That is the only requirement as to watering in the Explosives Act, so far as I remember: it does not apply to the watering of ordinary coal shots at the face; you can fire there however dusty it may be.

1386. General Rule 12 provides, in Sub-section (h): "If the place where a shot is to be fired is dry and dusty, then the shot shall not be fired unless one of the following conditions is observed, that is to say: (1) Unless the place of firing and all contiguous accessible places within a radius of 20 yards therefrom are at the time of firing in a wet state through watering or other treatment equivalent to watering, in all parts where dust is lodged, whether roof, floor, or sides.' But surely that does not extend only to haulage roads—it extends to shot-firing from the face?—Does it not go on to say "or unless an explosive is used which is not likely to inflame gas."?

1387. No doubt the Explosives Order is different. The Explosives Order no doubt only applies to main haulage roads, but General Rule 12 of the Act clearly applies to shot-firing anywhere, I suppose, if the mine is dry and dusty?—Does it not go on to say unless a certain explosive is used?

(*Mr. Cunynghame.*) It is Sub-clause 2, the last few lines of the sub-section.

(*Mr. Ratcliffe Ellis.*) "In the case of places in which watering would injure the roof or floor"—that is where watering cannot be done.

(*Chairman.*) Yes, that is all. So that where the floor or roof would not be injured by watering you are bound to water, whether the shot is fired at the face or anywhere else.

(*Mr. Ratcliffe Ellis.*) You will see the first subsection of (h) provides: "Unless the place of firing"—that is the place where the shot is fired.

1388. (*Chairman.*) Yes. Then in cases where watering is injurious for any other reason, another provision takes the place of watering. Therefore it seems to me to be clear that the rule is that where a shot is fired in a dry and dusty mine, whether it is at the face or anywhere else, the watering ought to take place within 20 yards, unless it is proved that the watering is injurious in some way?—They would say that the watering was injurious. I think the law is very mixed between General Rule 12 and the Explosives Order, and it is rather difficult to know what was intended; but at any rate, whatever the law may be, it is not the practice. If I asked people to water where they fired coal shots they would say, "The watering will injure the floor," and therefore they would say that they are entitled to fire it without watering.

1389. If you say that in your opinion the use of watering would not injure the floor, they would have to do it?—Well, I could say so, but it would be very difficult to prove. At any rate, I can assure you that as the rules stand it is not the practice not only in Lancashire, but in the other districts. If your view—which may be correct—is right, every shot that was fired in coal would have to be watered.

1390. Yes, every shot that was fired in coal, except where watering would injure the roof or floor?—Yes.

1391. That would be a question of evidence, I suppose?—It would be a thing which would be very difficult to prove.

1392. But surely it would be your duty as inspector of mines, if you came to the conclusion that there would be absolutely no injurious effect from watering 20 yards round a shot-fired place, to tell the manager of the mine that watering must take place, and if he disputed your ruling then surely you would have it out with him?—You see, the Explosives Order was made later than the General Rules, and if you refer to Section 3 of the Explosives Order you will find that it certainly implies that the only place where you are called upon to water is when you are going to fire a shot on a main road 100 yards back from the face. It goes on later to say, in the definitions, that the main road only extends to 100 yards from the coal face. Well, that excludes all working roads from the operation of Section 3. I know it has been argued before with regard to the same thing that Rule 12 requires something different, but I never can make up my mind to it, and nobody else does in practice.

1393. This is the rule in the Act of Parliament, and I should have thought it was a matter of law, that, unless (h) of Rule 12 is expressly amended by the clause in the Explosives Order, Sub-section (h) would continue to operate, and it would be the duty of the inspector to see that (h) was carried into effect. However, that is not your view of the matter?—It would be quite impracticable that you should require every shot in coal to be watered; it would be quite impracticable to carry it out.

1394. Why?—Water would, in that case, have to be conducted into every working place by some means or other; in every working place as a rule there would be a couple of shots fired in a day, or perhaps four. It would be a most troublesome operation; of course it could be done.

Digitized by Google

1395. You say it would be so troublesome and expensive that it would be practically impossible to carry Rule 12 (h) into effect?—I think that is so. I think the Explosives Order, so far as I am concerned, is my latest instruction.

1396. Then you consider that the Explosives Order supersedes the Coal Mines Regulation Act, and that even if it does not supersede the Coal Mines Regulation Act, Rule 12 (h) would be absolutely impracticable, and cannot be enforced, partly because of the expense, and partly because of the trouble which would be caused?—Yes; and that it never was enforced, from that point of view, previous to the Explosives Order coming into operation.

1397. Then you say that Rule 12 (h) has always been a dead letter?—Yes, so far as that particular point was concerned. It was assumed that the watering would be injurious.

1398. It has been always assumed in all cases that you never can water on the coal face without having an injurious effect on the floor or the roof?—It has been always assumed by the management that it would be so.

1399. You do not agree with that?—Well, partly I do, but I cannot see how they could carry out the other.

1400. I should like to ask you what you mean by "partly I do." Do you think there are cases in which it is perfectly clear that watering would not do any harm to the roof or the floor?—I think there are some cases, but as a rule in the hot mines watering would make the floor what they call "lift."

1401. But still there are cases where, if you have no Explosives Order to go upon, you would be bound to see that Rule 12 (h) was applied, and that in dry and dusty mines watering took place wherever a shot was fired within 20 yards of the shot?—The Explosives Order would apply to such dry and dusty mines.

1402. I know; but supposing this Explosives Order had never been issued, then you would have to fall back upon Rule 12 (h), and what I want to know is whether it is not perfectly clear that under Rule 12 (h) there are some cases in which you would be bound, as an inspector of mines, acting under Rule 12 (h), to insist upon watering, wherever a shot was fired, within 20 yards of the shot?—We are only called upon to carry out the Act of Parliament so far as is reasonably practicable. Those are the guiding words all through the Act.

(*Mr. Ratcliffe Ellis.*) At the beginning of Section 49, the General Rules, those words occur.

1403. (*Chairman.*) Yes—"so far as is reasonably practicable, in every mine." Then you would say that there are sufficient physical and engineering difficulties in the way of carrying out Rule 12 (h) to prevent its being applicable independently of the Explosives Order. That is your position?—I think I should be bound to say so. It must be remembered that Rule 12 contemplates the use of gunpowder and other dangerous explosives. A considerable change has been brought about by the passing of the Act of 1896 and the making of the Explosives Order, and the consequent use of "permitted" explosives.

1404. Do you consider that watering is carried on sufficiently in coal mines?—No. I am prepared to suggest that it should be made compulsory that all the main roads should be kept damp, either by watering or by some other treatment. I find it can be done as it is practised in South Wales, by having water carried along the roads, and having stand-pipes, and so on; and in some cases I find it can be done quite effectively by putting salt on the roads. If you apply salt, in three or four days the road becomes quite damp, and the dust which is on it becomes quite caked.

1405. (*Dr. Haldane.*) Is that ordinary salt?—Yes, common salt. Perhaps a better thing than salt seems to be chloride of calcium. A rather interesting experiment was carried out at the place where I live; the main street got so dusty from motors passing through that it became a question of sanitation; the motors were throwing all the dust up into the butchers' shops, and the other shops in the street; we tried chloride of calcium, and for fourteen days after that you might have watched a motor come through the village during very dry weather, and you would see it bringing a cloud of dust, but when it approached the part which was treated with chloride of calcium it carried the dust on for a few yards, and then the dust disappeared and there was not a sign of it; there was no dust while the motor passed through the village, but the instant it passed the part which was treated, the dust rose again in clouds. It is rather expensive stuff; I believe it costs about £2 a ton, or something like that, and they applied a ton on a road 250 yards long, and about 24ft. wide. A colliery road being narrower you might assume that the same quantity would do 500 yards. But salt is much cheaper than that; salt only costs, at the salt works, now about 5s. per ton—the salt they use. The use of either of those two things would, I think, get over the difficulty where the manager says, "Now, if I water my roads they will all be closed in a fortnight": that is to say, that the watering would injure the roads. I am prepared to suggest that the whole of the haulage roads ought to be watered. I find also that the accumulation of dust on those haulage roads is very much slower than one has been led to think; I have watched it recently where the road has been what they call "bottomed-up," that is to say, where they have taken a certain amount of the bottom of the road up to make it higher. Only the other day I was walking along a road in a colliery, and I said to the man, "This place is very dusty": he said, "Yes, it is; it gets out of the tubs as they come along." When we went further in the dust disappeared altogether, and I asked the question, "How is it that this part of the road is not dusty at all." He said, "It has been bottomed-up; that is to say, they have taken a layer off to make the place higher." I said, "How long ago?" He said, "About a month ago." So that in that case the coal, about 200 tons, if I remember rightly, had been hauled over it, but it had not accumulated any perceptible dust during that time. I came to the conclusion that once the roads are cleared of dust, and either water or salt, or some other substance of that description, applied, it is really not such a big undertaking as it has been looked upon as being. The chief reason of this dust accumulating on the roads is the bad trams which people are using, especially in Lancashire. The trams are made of wood and where the side board joins the bottom board, there is always about a quarter of an inch of space left beween the junction of the two boards. The fact is that the trams are made of the greenest stuff, and the cheapest stuff they can lay their hands on, and when the trams go down into the heat they pine and dry up and the joints all become so open that you can put your fingers between. If the trams were absolutely closed, so that the dust could not get out—that is, if they were covered—in my opinion, there would be no dust on the roads at all.

1406. (*Chairman.*) Then do you suggest that there ought to be some general rule which would compel those trams to be covered?—If you require them to water, as has been suggested, that will compel the other, in my opinion. To avoid the trouble they will have better trams. But there is another reason why the dust accumulates on the roads: it is the dust coming from the screens. In many cases they actually poison the air before it enters the pit-shaft. The dust from the screens where it is a downcast shaft, is brought within the influence of the fan, and the result is that the dust goes down along with the air. I examined a road in a colliery not very long ago, where there was no haulage road at all—it was only a travelling road for the men. One hundred yards from the shaft there was the very finest dust accumulated to a depth of six inches by the side of the road, and all over the road to the depth of 2 in. or 3 in. thick. That was carried on simply by the men walking along the road, and raising the dust, and the wind catching it—it carried it on 1,000 yards, and every bit of it had to come down the shaft. I have here a sample of the dust; it is the very finest stuff you could lay your hands on (*sample produced*). Those two things—the dust getting down the downcast shaft, and falling out of the trams, are the two evils. It was suggested that you might water the trams in-bye before they started. That was suggested a long time ago, and I have tried some experiments in that direction, but it is not very successful. If you water the tram inbye before it starts on its journey—say you put a gallon of water on the top of it with a sprinkler, and the tram has to come a mile, if it is drawn rapidly at eight or nine miles an hour it dries before it gets to the shaft, and if it comes by what they call the endless rope system, it takes it perhaps an hour before it gets to the shaft, and it is quite dry then. But we have a plan of placing a sprinkler so that as a tub comes along every 200 or 300 yards it

Digitized by Google

Mr. H. Hall. 25 July 1906.

opens a tap itself and gets a deluge of water. There are many ways in which, if they were put to it, they could make this evil very much less.

1407. Have you considered the various methods suggested of watering roads; can you suggest whether it would be better to have a system of sprays, or some other system?—The most effective method is to have what they call in South Wales "stand-pipes"; sometimes they put sprays on, and sometimes they put on what they call a hogger, and let a man do it by hand. So far as my experience goes it is better to let a man do it, if he has a stand-pipe, say, *there*, and his hogger goes 25 yards in *this* direction, and 25 yards in *this* direction.

1407* (*Dr. Haldane.*) May I ask what a "hogger" is?—A hose-pipe. He is able to direct it wherever he likes. If he sees dust up on the bars in the roof he can wash it off, or if he sees it at the sides he can wash it off. I think a good many people who have started with sprays have gone back to the plan of the man with the hose-pipe as being the better and the simpler.

1408. Could you tell us what sort of nozzle there is on the hose-pipe; has it simply a plain jet?—It has a nozzle something like a gardening hose-pipe; you have two or three sprays. You want your spray pretty strong, because if it is not you cannot wash high up enough.

1409. (*Mr. F. L. Davis.*) Can he not regulate it with his thumb?—Yes, he can tighten or slacken. Then there was a proposal, I think, that only zones should be treated.

1410. (*Chairman.*) Yes, what do you say as to that?—The drawback is that after you had taken all the trouble it might fail when it was expected to come into operation; that is the great drawback to it.

1411. What do you mean by "fail"?—Fail to be effective to stop an explosion from passing. The intention is that if there was a well-watered zone when the explosion reached that it would not pass over it.

1412. There has been an enormous number of experiments with a view to testing that, have there not?—Has it not been pretty well ascertained that if you have a wet zone say of 100 yards, it would be almost impossible to pass that zone?—I do not think there have been any experiments. There have been many explosions, or at least several explosions, where a wet part of the roads has been assumed as having stopped the explosion. I do not think there have been any experiments made. I do not quite know how you could try an experiment of that kind. But many years ago, I think in the year 1876, I had the first experimental coal-dust explosion that I ever had, and that travelled along an adit where the floor of the adit was simply wet clay; when you walked along it it reached half way to your boot-tops—we tried the experiment in there; we had to put wooden planks all along, and put the dust on the planks, but everything surrounding the dust was absolutely wet, and yet the explosion travelled out through it.

1413. Because there was dust there?—Yes.

1414. That is the difference. Supposing there was a wet place and no dust on top?—Then I think you would be all right, but my fear is that after you had done your very best in the way of wetting your zone there still would be dust, because you would be in this difficulty. Outside the zone and inside the zone you may assume that you had dusty roads; whichever way the wind was travelling it would always be carrying dust from the dusty part on to your damp zone, and it would be very difficult, I think, to keep it absolutely clear of dust at all times. I think that is the risk of the zone, but apart from that I think the managers would find that it was a simpler matter to do the whole length. I think they would prefer it.

1415. Then there is a system of exhausting the dust, is there not; taking out the dust by a fan, or by some means of that kind?—No, it is quite out of the question. I suppose that refers to the house-cleaner operation?

1416. (*Mr. F. L. Davis.*) It has only been a suggestion?—Of course, a house is a very small matter as compared with a dusty colliery.

1417. (*Chairman.*) You think it would be impracticable?—I think it would be impracticable.

1418. Have you made any study at all of the miners' disease, ankylostomiasis, and have you any opinion as to whether watering mines would have any effect in producing the disease?—It has been said that it might have.

1419. You do not know?—I do not know.

1420. You have no opinion on the subject?—No. I have read Dr. Haldane's reports upon it, and that kind of thing; I believe Dr. Haldane holds the view that it might. Of course, I have no opinion on the subject. I could not express an opinion.

1421. Have you anything more to say about watering?—I do not think so.

1422. Now we come to ventilation; that is dealt with in the first General Rule. Do you think that Rule is adequate?—I am very anxious that it should be altered, and that it should be amplified so as to make it illegal to carry on the ordinary work in any part of the seam where the air-current shows a cap on the flame of the lamp in use there—words something like that. Many and many a time I have gone down collieries and found a district where the air was carrying a cap.

1423. (*Mr. F. L. Davis.*) Do you say "to make it illegal to work in any part of the mine"?—In the part where the air-current was carrying a cap. Many and many a time I have gone down a mine and found that in a district the air passing round it was carrying a cap varying from a quarter of an inch to a good half-inch. I think everybody must know that that is a most dangerous condition for it to be in.

1424. (*Chairman.*) Did you not, under those circumstances, insist upon the work being stopped?—Well, I generally get my own way about it, but I have really no power in the matter.

1424*. You are quite sure that it still goes on in your district?—Yes, I find it from time to time. The very worst case I prosecuted in was a case in which nearly every air-current in the colliery carried a cap—but, mind, it was a very fiery colliery, and I dare say it would have been very difficult to so ventilate it that some part of it would not be carrying a cap. However, I prosecuted on the ground that the current carried a cap of gas, and the magistrates listened to the arguments for two or three days, and eventually dismissed the case. They said I had not shown that the fire-damp was explosive; with the cap as it was I could not prove it to be dangerous so long as it remained simply a cap, and so on. However, the case failed. I took another case later on, and got a conviction before the magistrates, and then the Quarter Sessions upset it. But I have always felt, in going round and looking at the ventilation, that the inspector should have more power than he has with reference to air that shows a cap. I am not speaking of a little accumulation of gas in the working-place; that does not amount to much; it is where the current becomes itself charged.

1425. Then you would allow, under certain circumstances, the working to go on where there was a stagnant accumulation of gas sufficient to show a cap—only a cap which might be caused by a small amount of gas stagnating somewhere, but not where you had a cap in the air currents?—I would have more power as regards getting a conviction in that case than the other. It there was stagnant gas to any great extent, and if men were working in it, or close to it, I should be prepared to prosecute the people unless I knew the manager was a careful man, and that it was accidental. I would judge in a matter of that kind.

1426. But wherever you saw a cap, and wherever there was an indication of gas in the air-current, you say that you ought to have power to stop the working in it?—In either case. I think we have the power in one case already.

1427. You have the power where it is stagnant, but the question is with regard to the air-current?—Yes, I wish it to be made illegal to work in a current showing a cap, except the work is for the purpose of removing the danger.

1428. You said that the ventilation in some cases was very bad by reason of dust being carried into the mine down the screens. How would you deal with that?—That would also be dealt with of itself if you made it compulsory that they should not have dusty main roads. They would soon put an end to that themselves.

Digitized by Google

1429. The dust that came down would very soon dry up, you mean?—They would put sprays at the bottom of the pit, and round the screens, or in some way to prevent it.

1430. Do you wish to say anything more about ventilation?—No, that is the only point, and I think it is a very important one. I have not the shadow of a doubt that it would be very much better if we had more powers with regard to the first General Rule. I know that it is not always wise to go into too much detail, but I think it would be very wise to amplify it to that extent.

1431. Now with regard to Rule 8 and the use of safety-lamps. Do you think that Rule 8 is satisfactory?—I think it is very unsatisfactory.

1432. How would you alter it?—I think that in 50 per cent. of the mines now in which safety-lamps are used we could not prove that they are used there as being required by the Act or by No. 8 General Rule. They are used in 50 per cent. of the mines voluntarily, and if we got at cross-purposes I think they would beat the inspectors—they would show that their mine was not a place where you were likely to meet with an accumulation of gas, and so on.

1433. In point of fact, has there been any difficulty in inducing the owners or the managers to use safety-lamps?—There has not. My district is rather exceptional. There are only a very few cases, perhaps half a dozen cases, in which they use candles, and there are probably half a dozen little adits where there are only a few men employed. The practice of using lamps has become universal, and it has been so for years; in fact, I may say that one of the Rules of the Association in the district which pays compensation for accidents is that before they admit a colliery as a member of their Association the colliery must use safety-lamps. They will not have as a member a colliery which uses candles.

1434. Then do you think that the use of safety-lamps should be compulsory in all mines where there is any suspicion of fire-damp?—I would amplify the rule, as we have already done in Lancashire.

1435. In Lancashire you have a Special Rule on the subject?—We have.

1436. Are you satisfied with your Special Rule?—Yes, I am satisfied.

1437. Will you tell us what your Special Rule is?—No. 5a, new Rule. This was brought into force some four or five years ago. Shall I read it?

1438. Yes?—"The manager shall see that locked safety-lamps only are used in every coal seam of the mines in which these Special Rules apply in which an explosion of inflammable gas causing any personal injury whatever has occurred within the previous twelve months or in which within the same period such a quantity of inflammable gas has been found as to render the use of naked lights dangerous." I think those words are in the General Rule—the latter part. The Special Rule goes on:—"This Rule shall not prevent the use of naked lights in main intake airways within 200 yards from the pit bottom or the lighting of lamps at lamp stations beyond that distance.

1439. The General Rule provides that safety-lamps shall be used "in any place in a mine in which there is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous." How would you define that; would you say that if a cap had been seen upon a safety-lamp that would be sufficient to cause the Rule to apply?—The words which you have mentioned are in General Rule No. 8.

1440. Yes, but then I understood that you objected to General Rule 8?—We want it amplified to this extent, that safety-lamps must be used in any seam in which there has been an explosion of gas causing any injury to any person within the preceding twelve months. That is all I want added to General Rule 8.

1441. Then you say those words are redundant—"in which there is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous." Really that is very vague, is it not?—It is very vague, but we should have to leave that in.

1442. Yes, but after that it comes to very little, I am afraid, unless you make some definition as to what is the sign of danger?—Yes; that is why I have said that in 50 per cent. of the mines we could not prove that they were using lamps as necessitated by the condition of the mine. They would say: "We are using them voluntarily."

1443. Then the special rule which I have before me satisfies you?—Yes.

1444. And it would take the place of the general rule?—Yes, it gets clear of this difficulty: if you happen to have an explosion in a mine where open lights are used—I am assuming cases in the country generally, and it might happen in Lancashire—you would want to introduce safety lamps. If the rule were altered as I suggest you could introduce them without any altercation or anything else. It would get over that difficulty, and it would bring in the Scotch mines, where there are 50 or 60 small explosions in the course of the year, which is a very unsatisfactory state of things. It would bring in most of those, at any rate, after a time.

1445. With regard to the construction of safety lamps, have you anything to say?—I am in favour of an official test of lamps—something like what we have for permitted explosives.

1446. Have you anything to say to the Commission with regard to the various classes of lamps now in use? For instance, would you allow the use of screw locks?—No. The inspectors have taken action about that, and screw locks have very nearly all disappeared, I think, except perhaps in the Midlands. We have no screw locks left, so far as I know, in Lancashire.

1447. If you found any screw locks left, do you think the management would not object to their being done away with?—No, they would not. They do not like to throw away their lamps; they would probably say: "When these lamps get into a bad condition we will put them on one side, and get lamps of an improved kind."

1448. The Special Rule which you quoted is in force throughout your district?—Yes, and also in the Manchester district.

1449. Then you think there ought to be a system of testing safety lamps, and I suppose if there is a system of testing safety lamps, the lamps would not be used until they were properly tested, naturally?—Any new type of lamp should be tested, I think, in some official way, and there should be liberty to send up lamps to be tested which the inspector thought were not satisfactory, in the same way as there is now a right to send up explosives which we have any doubt about. I think perhaps testing-stations might be established at some of the mining schools.

1450. Have many accidents happened in your district which have been due to defective lamps?—Two or three accidents have happened with regard to which it was almost impossible to know from what cause they had occurred.

1451. Do you think it quite probable that they might have been due to some defect in the safety lamps?—I will just run through the list which I have. One was, "A man opened his safety lamp"; another, "A man opened his safety lamp"; "Fired at a Davy lamp, supposed"—Davy lamps are out of use now; another, "Fired at a Davy lamp, supposed"; then "Fired at a Davy lamp"; "Fired at a Davy lamp"; "Defective safety lamp"—it really was not the type of lamp, but it had a hole in it, and it had not been properly seen to.

1452. That ought to have been discovered, I suppose?—It belonged to the underlooker, as it happened; he had been in the habit of taking his own lamp home, and managing it himself. It occurred some years ago. Then, "Safety lamps improperly opened"; that was a case at Wrexham, in which there were 20 men killed. Then, "Damaged safety lamp." There is nothing very definite

1453. Is there anything more you wish to say about lamps?—I point out that, as the rule now stands, the lamp has to be carried against the air-current passing in a particular part of the mine where it is being used, even if that current be explosive. Well, that is a very indefinite way of putting it, because the air in a particular mine might be only travelling, say, 2 ft. a second, and in another mine it might be travelling 8 ft. a second. We want to establish something definite as to the current that the lamp will with-

Digitized by Google

Mr. H. Hall. 25 July 1906.

stand, even supposing the current were explosive—say 8 ft. a second or 10 ft. a second. There are lamps now that will stand almost anything in the way of current.

1454. (*Mr. Ratcliffe Ellis.*) And the velocity of the current?—And the velocity of the current.

1455. (*Chairman.*) So that now a lamp might be tested one day in a current of low velocity, and might be tested the next day in a current of high velocity, and with different results?—And in the same mine the velocity of the current might increase from some cause or other.

1456. So that is a very unsatisfactory way of testing the mine—that you do not allow for different velocities of the current?—That is so.

1457. Then with regard to shot-firing, do you think it would be desirable or practicable to prohibit shot-firing during shifts when the men are in the mine?—No doubt it would bo very desirable, but it would be a very expensive method.

1458. Have you considered the amount of expense which would be caused—for instance, how much it would add to the cost per ton of coal?—It would depend very much. In some collieries the expense would not amount to much; in fact, it would probably be no disadvantage. That is in collieries where they have very hard seams of coal, where the men can spend the whole of their day in, as it were, preparing for the shots—that is, holing the coal and drilling the shot holes—and at the end of the day they can leave, and the shots be fired by a man between shifts. But where they are in a coal seam in which the coal is more easily got they may want a shot at ten o'clock in the morning, and another shot at two o'clock in the afternoon. In such collieries it would be very difficult to manage. It would be quite practicable, I think, to go so far as to say that shots other than coal shots should be fired between shifts. I do not think there would be much difficulty about that.

1459. Then you would suggest that some general rule to that effect should be laid down?—Well, I do not press the matter now that we have permitted explosives, and if we are going to water all the roads I think it rather alters the position. If we are going to water all the roads that would be enough to call upon them to do, I think, with reference to shot-firing at present.

1460. Even although it was not necessary to water within 20 yards of the shots at the face. With regard to miss-fire shots, you have a special rule in your district which I read to Mr. Martin. Have you a copy of the rule before you?—I remember the rule quite well; it is rather a long rule, but it is as short as we could make it at the time.

1461. Do you think that ought to be made a general rule?—Either that or something like it.

1462. Do you think that something should be done in the way of strengthening the general rule with regard to miss-fire shots and shot-firing?—Yes, I think something ought to be done, because there are so many detonators used now that some precaution ought to be taken to see that they are not left about in the coal or in any dangerous place.

1463. Is there anything more you would like to say about miss-fire shots?—I think not.

1464. With regard to the keeping of explosives by miners, do you think that miners should be compelled to buy their explosives from the owners, and, if so, should the owners be obliged to provide a store at the pit mouth?—With us the miners are all supplied with their explosives by the owners; the owners have a magazine some distance from the colliery, in which the explosives are kept.

1465. Does that system work well? Is the magazine easily accessible to the miners?—Yes.

1466. How far is it from the pit mouth?—I should think generally about a quarter of a mile, or something like that; but I may mention that in Lancashire the miners take their explosives home.

1467. Do you think it is a good thing that they should be allowed to do that?—Many of the explosives that we use in Lancashire are perfectly harmless. So long as they have not any detonators the explosive cannot do them any harm

1468. I was thinking of the provision that a man may not keep explosives at his own house. Under the Explosives Act the men may not have more than a certain quantity of explosives in their own houses?—Yes, and they must have a licence for certain explosives.

1469. Even with a licence they cannot have more than a certain quantity of certain explosives?—That is so. But I do not think there is anything in the regulation which you are referring to to prevent them taking gunpowder home. Now gunpowder is the most dangerous thing.

1470. I think gunpowder is mentioned?

(*Mr. Ratcliffe Ellis.*) Yes; not more than 10 lbs., I think it is.

1471. (*Chairman.*) We have had evidence with regard to the quantity of explosives that they may keep with licences. They may keep a certain amount of gunpowder, it seems, without a certificate?—Yes, without any licence.

1472. They may keep in any premises up to 30 lbs. of gunpowder, or 10 lbs. of other blasting explosives, and 100 detonators, if kept only for private use and not for sale; but in the case of explosives other than gunpowder, subject to the condition that a certificate from the Chief Officer of Police of the district has been obtained. But they may have up to 30 lbs. of gunpowder without any certificate?—Yes.

1473. Do you think that is desirable as to gunpowder?—Certainly not as to gunpowder.

1474. What would you suggest with regard to gunpowder?—I would suggest that they should not be allowed to take any explosives home.

1475. Where would the explosives be kept? What would you do with them?—What they had left over from their day's work, which might be a pound or two left at night, they would either leave down the mine or bring up and put in the magazine where they got it from. I do not think there is very much objection to their leaving it down the mine. We follow that practice considerably, but we also follow what I consider is the ideal method with reference to these explosives—that is, for the official shot-lighters to have the entire charge of the explosives and detonators, so that those things should never come into the hands of the colliers.

1476. That no collier should ever have at any time in his possession any explosive or any detonator?—That is so.

1477. Do you think that a General Rule to that effect ought to be made?—I am hardly prepared to say that. Of course, it might be easier with us than it would be in other parts of the country. I think it would be easier with us, because we already follow that practice very largely. A shot-lighter takes the explosives down the shaft, and he brings any that are left up the shaft at night, and puts them into the magazine. The collier never handles them, except perhaps he may take the charge and put it into the hole whilst the shot-lighter is watching him; the collier may give the shot-lighter a little assistance in that way.

1478. That you would not object to?—No, I think not. I mean the shot-lighter never loses sight of the explosive.

1479. Do you think there would be any objection on the part of the mine managers to such a Rule being enforced in your district?—I do not think there would be any objection on the part of the mine managers; at any rate, not any very serious objection if you were to say that no explosive was to be taken home by the men—to that extent. They would find some way of meeting it, and I do not think there would be any particular objection.

1480. Then you would perhaps say that any General Rule ought to go to that length, that no man should be allowed to take home any explosive?—Yes, I should say so.

1481. With regard to timbering have you Special Rules?—Yes.

1482. Are you satisfied with them?—The chief Special Rule for timbering is one of the New Rules, which were made some two or three years ago, and it is to this effect: that the manager must specify the maximum distance at which the supports, that is to say the props, may be set. I have found that as a general rule the managers have specified quite a proper distance—what they honestly thought was needed. In other cases—exceptional cases—they have taken up this position: they say, "My men already set the

Digitized by Google

props about 5ft. apart; if I say 10ft. apart, the inspector will never be able to catch me breaking the rule." That was especially the case in North Wales, where they took up that position; but by persuasion, and one thing and another, I think I have got them rather to alter their minds, and they have brought the distances to something more like what the men were accustomed to set the props, but not quite—I am not at all satisfied with the distances that props are set in North Wales.

1483. Then, in your opinion, this new Special Rule, the one with regard to timbering, has increased the number of accidents by making the men rely upon the maximum distances, and consequently thinking that if they keep within the Rule that was all that would be required of them. I understand they used to put up props at a lesser distance, and now, this Rule having given them a larger maximum distance than they were in the habit of observing, they put their props further apart than they used to, and consequently the mines are not so well propped up as they used to be?—That may be the case in some exceptional instances, but I do not think it is by any means general. What I was thinking more of was the managers' point of view. I think the men would go on propping their places just in the same way after the Special Rule was established as they did before; I do not think it would affect the men. But they were not propping sufficiently close before, so far as North Wales was concerned. That is all I wish to say. I do not at all believe in the view that because you tell a man he is to set his props 3ft. apart, when he sees a dangerous place, which needs an extra prop, he will not set it.

1484. You think, in point of fact, that the Rule has not done any harm, if it has done no good?—Well, things have happened, I must admit, very unfortunately; there has been a great increase in the number of falls, which speaks badly for the Rule on the face of it. But half of that increase, I believe, has taken place outside the zone of the operation of this new Rule. The operation of the Rule is confined to the working places, and has nothing to do with the roads at the out-bye parts of the workings, and half of the increase happened outside its operation, as it were, so that you cannot condemn the Rule on that ground. I am still a firm believer that systematic timbering will eventually do away with a considerable number of accidents at the coal face. It has not got any worse, so far as my district is concerned; the number is just about the same as it has been for some time; it has not made it any better, as yet, and it has not got any worse. But all the practical men whose opinions I have asked on the subject say, "Wait awhile—it will come out right in the end."

1485. Then you are in favour of this new Special Rule with regard to it?—Yes; but I would give the inspector the right to object when the manager fixes a Rule as to the distance which he (the inspector) thinks is too wide. He can object to it now, if he likes to go to arbitration, but I think I should strengthen the Rule in that way, so that the distance must have the approval of the inspector of the district, or something of that kind.

1486. Have you anything more to say about timbering?—No, I think not.

1487. With regard to haulage, there have been a large number of accidents in recent years. What is the state of things in your district as regards haulage accidents?—There has not been any increase; they are just about the same as they were. Taking the accidents which there are on inclined planes by trams and tubs, and by machinery underground (these three things may be called haulage), in the nearest 10 years to the present time they amounted to 141; that is in my district.

1488. Fatal accidents?—Yes, 141 deaths. In the 10 years previous to that they came out to 121 deaths.

1489. A slight increase?—Yes, there is an increase. The increase seems to be all on what are called inclined planes; that is to say, tubs break loose, and run the men down on the steep inclines, and although refuge places are provided there is hardly any escape for a man if he happens to be on the road.

1490. I suppose 141 would not be a higher percentage than 121 in the previous 10 years?—Not having regard to the number of men at work, and the quantity of coal mined.

1491. Then practically I may take it that the percentage of accidents has remained stationary for 20 years?—Yes, accidents of that particular class; but in the meantime there has been a great increase in the use of machinery underground. All the traction now is done by steam.

1492. I see the number of these haulage accidents varies very much indeed; they vary from four in 1903 to 20 in 1901?—Yes, they do vary a good deal.

1493. Have you any suggestion to make as regards the machinery, with respect to the kind of machinery employed, or the rules which should be put in force?—I think the haulage accidents can be reduced. I think there is no doubt about that. The principal reason why these accidents happen seems to be that the roads are not wide enough for men to stand clear when anything happens to a tram, and I think sufficient precaution is not taken to prevent the tubs getting loose and running down these inclines, either getting loose from chains breaking, and so on, or by men letting them loose. All I have to suggest with regard to the question of haulage is that it should be made compulsory on all haulage roads, where the trams travel at more than four miles an hour, or where the haulage is on an incline, with the full tubs against the incline, that, instead of as at present requiring refuge places every 10 or 20 yards, you should call upon the colliery to provide a road of such a width that men could stand clear on the side at any part of it.

1494. That would be a serious expense, I suppose?—No, not very serious. I think it is absolutely necessary.

1495. (*Mr. F. L. Davis.*) Do you say, no refuge places, but the roads wide enough?—I do not think I would do away with the refuge places, but I would have the roads wide enough at all parts where the speed exceeded four miles or where the traction was against an incline. You must remember that at present with regard to the men on the roads it is all pretty well dark, and if a man hears a tub coming what they call "wild," he does not know which road it will be on, whether it is coming down the empty road, or down the full road, or where it is, and while he is making up his mind it is at him.

1496. (*Chairman.*) Have you anything more to say about haulage?—In my own experience in going about these roads I always feel very shy about the trams, not knowing which side they may be coming on, or knowing that I may be on a narrow part of the road, and that I may meet the journey at any time, and that there is no escape unless I have time to get to one of the refuge holes. It is rather like going about with your life in your hands.

1497. Could there be any system of signalling?—It is too late then; it happens in an instant.

1498. Now we come to the question of boilers. Section 11 of the Factory Act, 1901, provides how often boilers should be examined. It says that every boiler should be examined thoroughly by a competent person at least once in every 14 months. Do you think that that ought to apply to coal mines?—Yes, I think it would be better to make them all alike—to have one system.

1499. Have you anything more to say about boilers?—I am not satisfied with the manner in which some of the insurance companies fill up the form required by the Factory Act when they make an examination of a boiler. They appear in some cases to make two reports, one of which is the statutory report and the other a report for the owner of a boiler, and I find that in some cases those reports materially differ.

1500. You say that in the case of some insurance offices you have known that they have given different reports?—Yes, two cases have come under my notice in which they have given different reports.

1501. Your point was, I think, that you did not feel so confident as you did before that your advice to insure was good advice?—That is so.

1502. (*Mr. F. L. Davis.*) The insurance company's inspector, I understand, makes one report to the owner and one to the insurance office?—No, he has to make a report on a factory form, which is a blue paper, and there are certain questions that he has to answer. He answered those questions on the statutory form, and then he left another report on white paper, which differed.

Digitized by Google

Mr. H. Hall.

25 July 1906.

1503. Do you mean he sent that to his insurance office?—No, to the owner of the boiler.

1504. (*Mr. Wm. Abraham.*) And then the owner of the colliery has not a report?—It was not a colliery.

1505. Well, the same thing may happen whatever it is?—Yes.

(*Mr. F. L. Davis.*) You mean the colliery owner is misled by it?

(*Mr. Wm. Abraham.*) Certainly; and with regard to what happens on his own property, affecting the lives of the men as well.

1506. (*Chairman.*) We go on now to shaft accidents. Some of the accidents are due to overwinding. Do you think a further provision is needed to secure the competency of the enginemen? With regard to the competency of enginemen, what have you to say?—I do not think you could improve matters by requiring the enginemen to have a certificate of competency. I think it depends so much upon the man. It depends upon his nerve and his patience and attention, and that I think you could not test by any examination. So far as his engines are concerned he will pick up all about them in three or four days. The accidents happen generally through want of nerve or want of attention.

1507. Do you think that any further precautions can be taken; for instance, with regard to safety-catches? Have you anything to say upon that question or as to the recapping of winding ropes?—For years the question of having safety-catches has been considered, but the inspectors as a body, including myself, have never felt sufficient confidence in them to make any recommendation that their application should be made compulsory. Every day the difficulty becomes greater, because people are introducing wire rope guides instead of wooden guides, and you can easily see that it would be much more difficult to arrest a cage with wire rope guides than it would be with the old wooden guides.

1508. That matter is undergoing investigation in South Africa, and probably the Commission will obtain a good deal of valuable information from the report which will be made. Now with regard to recapping of winding ropes, what do you say?—That question has been to the front very much lately. There is no doubt that the system of capping ropes can be improved very much from what has been the practice hitherto, but I do not think I should lay down that ropes must be capped at the end of a particular interval. Of course, it would depend so much upon how much the rope was used, but I think it would be a good thing that they should be required to state the date when they did re-cap it.

1509. Is there no way of testing the rope? Could you not test the capping of a rope by subjecting it to a strain every now and then?—No, I do not think you could; you would require too much machinery to do that. In order to test a rope you would have to have machinery, which is rather expensive. In connection with the Dock Board at Liverpool they have a place of that kind where recently several of the colliery people have sent their ropes and had them tested with regard to how much they would stand. They generally come out very well as regards the breaking strain of the rope, but with regard to the capping they would come out very badly. There is as much as 50 per cent. difference between the strength of the rope and the strength of the capping. But everybody has the matter in hand, and it has only been discovered recently that that was so, and I think matters will soon be mended with regard to that.

1510. Have you any suggestion to make as to re-capping?—I have not.

1511. Then what about bars or gates at the cage ends?—I do not think we should make gates compulsory; holding-on bars are already required by the Special Rules for Lancashire (No. 85). In some cases it would not be very pleasant to have the cage ends closed up. I think I would rather have them open. A man has to be fairly careless to tumble out.

1512. With regard to accidents from surface sidings, what have you to say?—We introduced some Special Rules on the subject four or five years ago, at the same time as the Rules which we have been speaking about, and I think they are fairly efficient.

1513. There are several Rules on the subject. What Rules do you refer to specially? Do you think it is a case where you could put anything into the General Rules?—Yes.

1514. You think that some of these Special Rules ought to be made General Rules?—Yes, a good many might now.

1515. Will you point out which you think might reasonably be made General Rules?—Our Rules with regard to wagons are these:—"Wherever railway wagons are specially placed so as to afford a thoroughfare for workpersons, such thoroughfare shall be at least a wagon-length." That is one Rule. Then: "a coupling pole or other mechanical appliance shall be used in every case for coupling and uncoupling wagons in motion." Another Rule is: "Wherever railway wagons are being pushed past the screens the brakesman shall ride on the nearest approaching wagon and the driver of the locomotive shall attract attention by whistling." Then there is another Rule: "No one shall pass immediately in front of or between wagons moving under the screens or on adjacent sidings." Then: "The person or persons having charge of the moving of railway wagons under the screens shall, before they are moved, give warning to those at the screens and staging who are likely to be affected." Then: "No boy, girl, or woman and no person other than the properly appointed person, shall interfere in any way with the movement of railway wagons."

1516. You say that those Rules which you have read might very well be made General Rules, in your opinion, to apply to all mines?—Yes, or something like them, to apply to all sidings.

1517. Have you anything more of a general nature which you would like to say about accidents? For instance, what do you think ought to be the process by which Special Rules should be established? Do you think the present process is satisfactory?—The way in which we do it now is rather cumbersome. In the case where the Rules are proposed by the owner of the mine 40 days is the period mentioned, and where the Rules are proposed by the Home Office 20 days is the period. Those two periods might be made both alike, anyhow, and that would simplify matters to some extent. I think also that it might be made clear that when Special Rules are being established, one establishment as it were would do for all the mines belonging to one firm. As we do it at present, they have to be established at each of the separate mines of a firm. There would be no objection, I think, to dealing with the firm as a whole, or even to the extent of dealing with the district as a whole. But of course you would have to have a method where a new colliery came into operation and you had to establish the Rules for that particular mine. I think it is fairly satisfactory at present, but it gives a great deal of trouble, I have no doubt. But in every case whenever Rules are established either by the Secretary of State or by the owner or by whosoever it is, the men should have an opportunity of seeing the Rules before they are established.

1518. The suggestion is that these Rules should be set up and established, pretty much on the system that is now in vogue under the Factory Act. Do you think that that would be an improvement? Section 79 of the Factory Act provides: "Where the Secretary of State is satisfied that any manufacture, machinery, plant, process or description of manual labour, used in factories or workshops, is dangerous or injurious to health or dangerous to life or limb, either generally or in the case of women, children, or any other class of persons, he may certify that manufacture, machinery, plant, process or description of manual labour to be dangerous; and thereupon the Secretary of State may, subject to the provisions of this Act, make such regulations as appear to him to be reasonably practicable and to meet the necessity of the case." Then Section 80 is as to the procedure by the Secretary of State, and in that section provision is made for objections, and it is stated how those objections should be dealt with, and what inquiries should be made. Then Section 82 deals with the applications of regulations, whether they apply to particular factories or workshops, or whether they apply generally. Do you think that this procedure under the Factory Act would be an improvement on the present procedure, by which you have an arbitration in the case of difference of opinion?—It is rather difficult to say. Under the Factory Act it seems to refer more to what we would call General Rules. Our Special Rules are really, at any rate chiefly, with the intention of showing to the officials which Rules the particular

Digitized by Google

Rescue

official has to attend to; that is the chief object of Special Rules, although there are a great many Rules among them which have got in from time to time, but which I think really ought to be in the Act of Parliament. They are only waiting, with regard to the Special Rules, for the opportunity of putting them into an Act of Parliament.

1519. In fact the suggestion on the part of the Home Office is that Special Rules should be an exception, and that a very large number of these Special Rules which have been established according to the procedure now in vogue should be made General Rules. Do you agree—you say that would be a good thing, I understand?—Yes, I think so.

1520. What do you say to this system of arbitration before Rules can be set up?—I think that in fairness both parties should have a say in the matter—both the men and the colliery owners.

1521. The Home Office suggest that it is a very tedious procedure, and one which leads to a great deal of delay, so much so that the Home Office has not resorted to it in the case of Special Rules under the Coal Mines Act since the big South Wales arbitration from 1893 to 1895. So it would seem, from the fact that the procedure has not been resorted to for more than 10 years, that in fact it has broken down?—But there would be some kind of arbitration under the proposed Factory Act regulation, would there not, in case of dispute?

1522. Yes, it would be inquiry. Section 81 provides: "(1) The Secretary of State may appoint a competent person to hold an inquiry with regard to any draft regulations, and to report to him thereon. (2) The inquiry shall be held in public," and so on?—I cannot express any definite opinion on the subject.

1523. Then I gather that you are fairly satisfied with the Codes at present enforced in your district?—Yes. I have only two, and I think they are fairly satisfactory. Of course, a great number might be made General Rules; as I have said, they are only waiting for an opportunity of putting them into the Act as General Rules.

1524. Still, you do not suggest that the Special Rules require to be amended in your district?—No, I do not think they do—not at present, at any rate.

1525. With regard to investigation into mine accidents, sometimes it has been said on behalf of the men that the coroners' inquests do not carry the matter far enough in the way of settling responsibility for an accident, or that sometimes they do not carry the matter far enough with regard to investigating the causes of the accident, quite independently of any special responsibility; and it has been suggested on behalf of the men that it should not always be left to the Home Office alone to decide as to whether a further inquiry was necessary, but that some other procedure might be set up, and that the persons interested as a matter of right should be entitled to ask for some further inquiry. What do you say as to the inquiries at coroners' inquests? Do you think as a rule those inquiries bring out the facts of the case sufficiently?—I have attended officially large inquiries into colliery accidents in Lancashire, Yorkshire, Staffordshire, Durham, South Wales, and Scotland, and my experience of those inquiries is that they were quite satisfactory and quite comprehensive of all the circumstances. The smaller accidents and smaller inquests are sometimes somewhat hurried, but I think as a rule the coroners' inquiries are satisfactory, and I think the coroners as a rule in large inquiries go to very considerable trouble to examine into everything that may fairly be brought in.

1526. Have you had any cases in your district where the Home Office has ordered some further inquiry?—No, not in my district.

1527. The men have been perfectly satisfied with the investigations at the coroners' inquests, so far as you know?—So far as I know, yes.

1528. With regard to rescue work and General Rule 34 as to ambulance, what is the position in your district?—We teach ambulance work at the Technical College in Wigan, and several of the collieries have classes.

1529. That is to say, ambulance classes?—Yes. But I think it is desirable that at any rate the under-manager in a colliery should be required to have an ambulance certificate.

1530. Would that apply to the manager necessarily as well?—At present I think that is not necessary. The under-manager is always on the spot.

1531. Have you any experience of rescue corps in your district?—Quite recently we have been having meetings to establish a kind of central rescue corps—just one, I think, as a beginning for a wide district. We thought one would be perhaps better as a beginning than trying five or six; for one reason, we should be able to find sufficient funds to carry it on, and we should try to learn what the thing is worth before it is extended.

1532. Do you think there would be any difficulty in getting sufficient funds to have one rescue station formed?—No, I do not think there will be any difficulty whatever.

1533. I suppose, if the station is proved to be useful, there will be no difficulty in finding funds for more stations?—I do not think there will.

1534. Have you anything to say about pneumataphore and breathing apparatus for going down mines when the atmosphere cannot support life?—I do not think I have anything particular to say about them. That is just what we shall try to test at the station.

1535. Have you had any cases of ankylostomiasis in your district that you know of?—Not at present. We had a case in one of the hospitals in Liverpool of a man from West Africa, I think, not a miner. It was said by the Liverpool medical profession that he had the disease.

1536. He must have contracted it in South Africa?—Yes, no doubt he had. We tried to get him into the hospital; he left the Liverpool Hospital and went to his home, and we tried to get him into some other hospital so as to have him properly treated, but both he and his mother were very difficult people to deal with, and he would not go into the Liverpool Hospital at all. Now we have lost sight of him. He was a very curious kind of man. I asked him: "Why did you leave Liverpool Hospital before you were cured?" He said: "I was tired of it; there were so many young doctors coming in and taking specimens of my blood that I could not stand it any longer."

1537. Then you have no knowledge of any case in your district?—I do not think there has been any case.

1538. Have you formed any opinion with regard to whether steps ought to be taken to prevent the disease coming to your district?—I think it might be well to make a Special Rule requiring the men to relieve themselves away from the main roads, and to cover it; but I am not a great believer in any attempts at sanitation. I think myself that that would make matters worse; the sanitation could never be perfect, and imperfect sanitation is worse than nothing.

1539. Now I come to the examination system, which I am told is different in every district. Do you consider that the working of the Examination Board is satisfactory in your district?—Yes, I think it works very well; but if you wanted to make a change, what I should suggest would be that you should reduce the number of Examination Boards down to about six. For instance, have one for Scotland instead of two, one for Lancashire instead of two, and so on. You could quite easily reduce the number down to six, and make them more efficient than they are, and avoid what is perhaps a difficulty—that is, the variety of qualifications.

1540. You would only have six to deal with instead of twelve?—Yes.

1541. But would you have the same examination in all six?—No, I should leave it as it is, to the six Boards.

1542. Then if each Board has its own examination, would you suggest that the present system should be continued—that passing an examination in one district qualified a man for every district?—Yes.

1543. Might it not happen that in some districts a man might pass his examination without having any knowledge at all of the working of a fiery mine?—I think to pass any of the Boards probably, whether he had been brought up in a fiery mine or a non-fiery mine, he would have to answer questions with reference to ventilation and gases.

Digitized by Google

Mr. H. Hall. 25 July 1906.

1544. Would he necessarily have to answer those particular questions, because we are told in some districts the system of a certain number of maximum marks, however obtained, is sufficient to qualify, and that he need not qualify in any particular subject? Would you suggest that it should be necessary to qualify as to the working of fiery mines—that he should have some practical, or, at all events, theoretical knowledge of how fiery mines are worked, or ought to be worked?—I certainly think in every examination there ought to be questions to test whether a man understands ventilation—the theoretical part of ventilation and the theoretical part of managing fiery mines. If he did happen to move into a district where he had to take charge of a fiery mine, if he knew the theoretical part he would soon pick up the other I think. But I think the examinations should certainly test him as to that knowledge, wherever he was examined. He would not be a mining engineer if he did not know something of ventilation, safety lamps, and so on.

1545. Then the only reform you would suggest is that there should be six Boards instead of twelve?—Yes. The colliery-owners in a district have to accept these men as the official managers, and they have to be responsible for their actions, and I think myself that they are entitled to have some say as to the kind of qualifications that the men should possess.

1546. With regard to managers of metalliferous mines, do you think they should be required to obtain certificates?—You might give them the opportunity of being examined along with the coal mine managers; I do not see why they should not. If they like to go in for a certificate they might do so in that way.

1547. Would you compel them to go in for a certificate previous to their appointment as managers of metalliferous mines?—At present I do not think I would, but I really am not sufficiently familiar with the question to express any decided opinion.

1548. With regard to Colonial Governments, do you think it would be a good thing if, under certain conditions which might be laid down, Colonial certificates should be accepted in lieu of certificates given at home?—Off-hand I do not think I would accept the Colonial certificates, but I think I would allow experience abroad to count in enabling candidates to sit at home for a certificate.

1549. Therefore, if a man wanted to add to his experience by going to the Colonies to find out how coal mines are worked there, you would say that that might reasonably be accepted as part of the qualification of having worked underground?—I think so—perhaps it would be an advantage.

1550. Would you do anything towards compelling the six Boards to have a uniform standard of qualification, or in any respect interfere with them and with their discretion in varying the qualifications?—No, I would leave it to the Boards.

1551. Supposing certificates were given to managers of metalliferous mines, would you have, as you have in coal mines, one certificate for every class of coal mines, or, in the case of metalliferous mines, would you wish to qualify the mine so that you would have one certificate for one class of mines and another certificate for another class of mines?—I do not think that is important. Of course, there is a wide difference of class. Under the Acts of Parliament as metalliferous mines we class the slate quarries, which are working underground, and are very different from other metalliferous mines. But still, I think one certificate would be quite enough. I should like to suggest one or two further points.

1552. By all means?—I think it would be well to have some experiments made, which might, I think, easily be carried out at Woolwich, to test the effect of mixing coaldust with air carrying a certain amount of gas. That was tested long ago by Sir Frederick Abel, and he found, so far as I remember, that air mixed with about 2 per cent. of gas was explosive. But I think we might follow it up now by some other experiments. It would attract attention to the matter, if it did nothing else, and it would do good in that way. I also think that we might test how far an explosion of explosive gas would carry on in an atmosphere such as we have been speaking about in the absence of dust—that is to say, an atmosphere showing a cap. Supposing an explosion occurred in gas in a part of a mine, an experiment might be made to see how far it would carry on in that atmosphere which was tainted with gas, and whether it would spread through the atmosphere which was tainted, or whether it would not. Of course, if a question of dust came in, I think it would undoubtedly spread, but possibly it might without dust.

1553. (*Mr. F. L. Davis.*) An atmosphere with a small percentage of dust in it?—Yes, say 2 per cent., showing a cap. We could partition off the tube and have explosive gas in the part petitioned off, and the tainted gas on the other side.

1554. (*Mr. Cunynghame.*) Your suggestion is that, just as is found in a gas engine, the compression due to the explosion might alter the proportion of gas which is necessary to make an explosive mixture?—Yes, it might be compression, which is generally supposed to have an effect of that kind.

1555. Exactly. I gather from your evidence that you consider dust in a mine is much more dangerous than gas. I mean in the case of these great explosions they are nearly sure to be in dusty mines, like Courrières, for instance, rather than gassy mines?—Well, generally you have gas to a certain extent.

1556. You have to begin with gas?—But I think that in a mine which has dry dust throughout it, an explosion would be much more devastating than a mine which even had a good quantity of gas and no dust.

1557. I put it in another way: would it not be almost impossible in a big mine to have gas all over it, or over a large portion of it, in sufficient quantity to cause an explosion without the gas being discovered. I mean is not dust really the great danger that we have to guard against for big explosions?—Dust is the great factor, I think.

1558. What has struck me is this, and I should like to know what is your opinion upon it: I will not put it that you agree with this, and I do not say that it is my opinion: but do you think that some greater precautions are required in mines which are dusty as well as gassy than the precautions required in mines which are gassy only?—Yes, certainly. I should say treat the dust much the same as you treat gas—that there must be neither dust nor gas—put them on the same footing.

1559. What I mean is this. would it be possible to allow naked lights in a mine where gas has been found, which was absolutely free from dust, whereas you would prohibit them in a mine which was also dusty. Perhaps you have not considered that question?—Yes, I understand what you mean. I think undoubtedly the most dangerous of the two would be the mine in which there was some little gas and a large quantity of dust: it would be more dangerous, perhaps, than a mine where there was a larger quantity of gas and no dust.

1560. You are aware, for instance, that at Courrières the mine had practically no gas in it, and that it was worked by naked lights?—Yes, I know that. But may there not have been a possibility of the fire distilling gas?

(*Mr. Cunynghame.*) Well, that was a theory, but I think it has been disproved, and we need not go into that.

(*Chairman.*) Probably we shall have a report on the subject.

1561. (*Mr. Cunynghame.*) Yes, we shall have all that question before us. Could you tell us really what proportion of mines in your district you would describe as really dusty mines? It is a difficult question to answer at a moment's notice, but can you give us an idea of the proportion?—Nearly all of them, especially in Lancashire, but not so much so in North Wales: nearly all the Lancashire mines, except the very shallow ones.

1562. I will pass now to another subject. Are you satisfied in your district with the facilities that working men have to acquire some knowledge of the working of coal mines? The County Councils do something, or assist in some way, do they not?—We assist the men at the mining schools.

1563. To learn mining?—Yes. The fees charged are very small.

1564. And the County Councils subscribe a certain amount: they make a grant to help in that?—Yes, the County Councils give us a large grant for the

Digitized by Google

college; and the miners themselves, more especially firemen, and that class of men, come to the technical school to hear lectures and to be taught mining.

1565. I should like to ask you generally, are you satisfied with the opportunities which the men get: do you think there is a fair chance that every man who has any spare time, and is desirous of learning, gets the instruction that is necessary, or ought more to be done?—In the neighbourhood of Wigan they have every facility.

1566. In other neighbourhoods have they facilities?—In other neighbourhoods any teaching that is done for them, as a rule, is done by private lecturers, who would probably charge them a fee of some kind or other: but I think some of the boroughs do give funds towards that kind of teaching. I think generally the miners and the under officials have a good opportunity if they like to use it.

1567. All over the district?—Yes, I think so.

1568. You told us there was an increase of accidents underground. There has been a general increase, but I understand there has not been an increase from falls of roof. Is that so, or is it the other way?—I am afraid there has been an increase from falls of roof. At any rate, the falls of roof have not decreased in the way that several other classes of accidents have.

1569. Are you able to give a reason for that? Is that increase due to increased carelessness, or what is it? I do not know what cause to suggest to you?—I am afraid I cannot suggest any cause at all, but I am satisfied that the new rule about systematic timbering is not responsible for it.

1569.* No, I do not suggest that that rule would be responsible, but do you think that if it was made stricter in the way of allowing an inspector to approve the specified distance, that would diminish it?—That would be a good thing to do. I think that is one of the weaknesses of the new rule, that it is left so entirely in the hands of the manager to specify.

1570. But you agree that *prima facie*, when you look at it, the number of accidents from falls of roof is too big: it is bigger than it ought to be?—One thinks it it is, because it is so big. I think myself that it can be reduced.

1571. By the suggestion that you have made?—Yes. I do not think falls can be very largely reduced. I have often taken outside intelligent men down the pits, and the observation which some of them have made to me when they have come up was this: they have said: "Well, you have a great many accidents from the roof tumbling down on people: the wonder to me is that you have not more"—that is, that the danger is so very considerable. It is not like accidents in other trades: you repair a roof in a coal mine and make it perfectly satisfactory and perfectly safe, and then Sunday intervenes, and you go there on Monday morning and you find that your work is pretty well undone, and the manager has to start again. That is the great difficulty in mining, that what you do may be upset to-morrow after you have done the best you can. The same thing applies to ventilation: the manager may have his mine perfectly ventilated on one day, and then something happens, and when he goes again he finds the gas collected there. Those are reasons, in my opinion, why inspectors should not be always prosecuting people: it is not like the case of factories, where, when a certain thing has to be done, and it is once done, it is done for always. As Mr. Abraham knows, in coal mines a man may do his very best and it is all upset. But that does not apply to everybody; there are careless people with whom prosecutions do good.

1572. You mean the observation applies to men as much as to masters—they may do their very best, but still get these accidents?—Yes.

1573. With regard to haulage on inclined planes have you heard of anything like the use of automatic catches to prevent runaway wagons?—Yes; I suggest they should have something to stop the wagons when they run away.

1574. Is there any invention which we might compel to be brought into use to stop runaway wagons?—Yes.

1575. (*Mr. Ratcliffe Ellis.*) The returns from the different districts show that the accidents are much more numerous in some districts than in others?—That is so.

1576. Do you attribute that very largely to the different physical conditions of the mines in those districts?—I think it is largely attributable to that. *Mr. H. Hall.* 25 July 1906.

1577. Do you think that would limit the number of Special Rules which might be made General Rules?—No, I do not think so. I think there are a lot of Special Rules which might be made applicable to all the districts.

1578. With regard to assistant inspectors, do you think it would be an advantage if the assistants were moved from one district to another after a service of four or five years in any district?—Yes; I think we miss an opportunity under the present system. I think it would be an advantage to move an assistant inspector at the end of each five years, so that when he became a district inspector he would have a much wider experience than he has at present. I do not think it is a good plan for the same men to remain in the same district for so very many years. That partly applies to the district inspector as well as to the assistant inspector—one gets into grooves and that kind of thing.

1579. At any rate, you think with regard to the assistants it would be an advantage to them to move them about?—Certainly. I think we are missing an opportunity.

1580. Do you think there is sufficient inspection in your district by the inspectors?—Well, hardly. I am placed in rather an awkward position; the much greater part of actual work in my district is in connection with coal mines, and I have only one assistant to help me in the coal mines, and the other two assistants, as I have said before, are not coal mine inspectors. It would be better if one of the quarry assistants, or at any rate an assistant, should work at the quarries and the coal mines as well, that is to say, that I should have two assistants instead of the one available for coal mines, or for mixed inspections, either coal mines or quarries.

1581. Then if your two assistants could each of them make inspections and deal with the question of collieries, that would be sufficient; if you could have two assistants who could both of them look after collieries, and you yourself also to look after collieries, then the inspection would be satisfactory?—I think it is fairly satisfactory as it is. But I do feel very much pushed at times, because, personally, I am a week or two in Lancashire, and then I have to go away to Wales to look at the quarries, and one thing and another, and I have not the same opportunity now that I had before of making underground inspections.

1582. Are there any of your duties other than those of actual inspecting which you think could be removed in order to give you more time to inspect?—No, I do not think so. If we have to do more inspection it would be in the direction of having more assistants to do it—more inspectors to do it. I mean if you do not do things yourself or yourselves you lose touch with what is going on.

1583. Do you think that, in the absence of as complete an inspection as would satisfy you, safety suffers at present?—Well, I should like a little more coal mine inspection to be going on in the district than there is. The man I have works very hard; I could not ask him to do more than he does.

1584. That would be secured by a second assistant who could go and inspect collieries?—Yes, a man who could do either the collieries or the quarries.

1585. With regard to the inspection by workmen you said you had a report of the one inspection that you knew of?—Yes; I have handed it in.

1586. It was said, I think, by Mr. Delevingne, that one of the reasons given in Lancashire was that the work was too laborious and too expensive for the men to undertake it. Was that reason given to you—that they did not get paid for the work, and that it was too laborious?—The manager of that particular mine said "These two men were awfully knocked up at the end of this inspection," but that was, I think, because it was rather new work for them; they had done a tremendous lot of walking in those 20 to 22 days—walking in cramped positions, and in low places. The men do the inspections well enough, I have no doubt.

1587. Whose pit was this?—Well, I said I would not state whose pit it was. I have covered up the name.

Digitized by Google

Mr H. Hall.

25 July 1906.

1588. Certainly. You doubt whether this inspection, if it became frequent, would not rather lessen the feeling of responsibility of the managers of the mine—they might think that if the men had satisfied themselves that it was safe they need not trouble themselves very much about it?—Yes, that is an impression I have. I may be wrong, but that is what I think.

1589. If these inspections were more frequent would it not be rather harrassing to the management?—They would have to send a man to accompany the men inspecting. On those 22 days I have mentioned they had to send a man to accompany those two inspectors.

1590. With reference to the necessity of maintenance of discipline by fining, you have pointed out the expense and inconvenience of taking men before the magistrates. It is not always that the magistrates convict in those cases?—No, not always.

1591. If a prosecution fails, in your experience is it not rather detrimental to discipline?—Yes, I think it is; but you cannot avoid it—I mean the magistrate will act for himself, and he is there for that purpose.

1592. Yes, I am not thinking of interfering with the magistrate at all; but with reference to discipline, if a man is brought before the magistrates and the case is dismissed, it is unfortunate for the management?—Yes, it is unfortunate.

1593. And it does not tend to secure discipline?—It does not if they do not convict.

1594. With reference to fining, you suggest that the amount of fines should be given to some hospital. That is usually the case, is it not?—It is very general. In Lancashire it is generally done.

1595. Would you suggest that in addition to that there should be an advertisement, a notice of the fine posted up, and a caution bill, as in the case of convictions?—In very bad cases you might put it up at the pit-head.

1596. You would not suggest it in every case?—Oh no.

1597. With reference to the inspection during the shift, you said that there should be two inspections provided for, in the General Rule, during the shift?—Yes.

1598. In addition to that you would still have the inspection before the beginning of the shift?—Yes.

1599. Would you leave it to the management to say within what time before the beginning of the shift the inspection should take place?—Yes—as it is now.

1600. Then would you require the second visit during the shift to be reported in the report book, or would it be sufficient if there was a second visit made?—We do not at present enter the second visit.

1601. Would you suggest that that should be entered. Is it necessary to enter it?—I think it would be well that the day-shift man should make some kind of report. He does make a report to his overman, and so on.

1602. Is it your experience that these men would very much rather make the inspection than do any book-keeping or writing of a report; that is a labour to them, is it not?—Well, at first it is a difficulty for them, but I think they get accustomed to it.

1603. You think that there should be a second inspection, and that that should be reported in the report book?—If there were two in the day-shift, as I suggest, I think it would be enough to report one of them—as to what the man has seen during his day's work.

1604. Then with respect to the responsibility of the owner you suggest that the manager should be put into a different category—that he should be taken out of the category which includes the owner and the agent, and that with reference to the owner the term "reasonable means" should be more defined. Is that your suggestion?—Yes—use the word "facilities," I think, or something of that kind.

1605. But have you considered at all fully as to how you would define "reasonable means"?—Off-hand I think the owner should be called upon to prove that he has given every facility to the manager to carry out the Act of Parliament. I think those would be better words than the words as they stand.

1606. And you would still leave it to the magistrates to decide that question?—Yes, they would have to decide that.

1607. Would that include the question whether he paid a sufficient salary to the manager?—No, I do not think that would come in at all. If he had appointed a manager with a certificate, of course he would be entitled to pay him as he liked—he has the services of a man who is recognised by the law.

1608. That is the only suggestion you would make—that it should be added that the owner should prove he has given all reasonable facilities to the actual manager?—Yes.

1609. Taking the rule as it is now, it would be quite competent to say that if he had not done that he had not adopted all reasonable means, would it not?—Then would arise the question. I wanted to make it a little more definite—that was all.

1610. But my point is that under your suggested amendment you would have to leave it to the magistrates to decide whether the owner had given all reasonable facilities. Does that alter the present law? The magistrates have to decide now whether the owner has adopted all reasonable means. You see there is nothing in the Act of Parliament which says that if he has merely appointed a manager he is relieved: there is nothing about appointing a manager, but it is that he has taken all reasonable means to see that these regulations are carried out. Do you think that would carry it any further than the present section of the Act?—The position is this: that a good many magistrates, looking at that rule, would be liable to hold "Well, these people have appointed a certificated manager, and they have done all that they could reasonably be supposed to do." Some of them do hold that: that is the difficulty. Now I want to say that the owner must provide everything—not only appoint a manager, but provide all the necessaries.

1611. But you are, according to my experience, always very ably represented before the magistrates. Is not that a matter for argument?—Well, I think it is, but I think it might be made more clear, so as to avoid argument.

1612. You think it might be made more distinct as to what view the magistrates should take?—Yes.

1613. With reference to accidents from explosions, you have said that watering is not done before the shot is fired, because it is not practicable?—That is refering to the coal shots?

1614. Yes?—Yes: I mean it is not reasonably practicable. It is possible, you know.

1615. In your district high explosives are very largely used—there is no powder used, is there?—Permitted explosives are very largely used.

1616. I mean permitted explosives?—Yes, almost universally. There are a few adits, and little bits of places where they still use gunpowder.

1617. And notwithstanding that the particular place where the shot has been fired has not been watered, you have had no explosions for three and a half years?—No fatal accidents from explosions.

1618. So that whatever is done in Lancashire in that respect as to watering seems to be satisfactory at present?—Yes, at present, but you never know what may happen.

1619. So far as your three and a half years' experience goes, the present system, at all events, is not unsatisfactory?—I think it is desirable to have more watering, even with regard to the question of health: it is worth while for health alone.

1620. But when you said that you wanted the mines watered, you meant, I suppose, kept damp in some way?—Yes, so that when you walk along the roads you will not raise dust.

1621. You think if that was provided for it would secure some arrangement being made on the surface, so that the dust from the screens would not be taken down the shaft, and that the tubs would be put in better condition, so as to prevent the spreading of dust?—Yes.

1622. Now, with reference to ventilation, in reference to Rule 1 the amendment you would suggest, as I understand, is that where there is a cap found in the lamp in the air current the ventilation should then be deemed to be inadequate?—In that particular part—yes.

Digitized by Google

1623. How long would that state of things be taken to be inadequate: supposing you had seen a cap in a lamp to-day, and it was not there to-morrow, it would only be taken to be inadequate, I suppose, on the date when the cap was there?—If there was no cap the men would go to work again.

1624. And the only alteration you would suggest would be not that the rule should be altered, but that inadequate ventilation should be defined to be the presence of a cap on the lamp in the air-current?—Define it to that extent. I have made a note here of some words which are of course open to all kinds of criticism. I suggest that the following words should be added after the words "shall be" in the last line of General Rule 1: "kept free from accumulations of firedamp or noxious gases, and in a fit state for working and passing therein": and then follow on with a new clause: "Where the exudation or outflow of firedamp in any part of the mine is such as to cause the air-current to show any blue cap on the flame of the safety lamp in ordinary use there, work shall be immediately discontinued in the part of the mine so affected."

1625. That would come in another rule, I think: it would come in the Inspection Rule, which would provide that the management should withdraw the men?—Well, that gives you an idea of what I have in my mind.

1626. Thank you. With reference to the safety-lamp question, I think your view was that where there has been an explosion of gas within twelve months, safety lamps ought to be used?—Yes.

1627. Then would you, under any circumstances, permit them to be disused after that?—Of course after twelve months, if there was no other explosion, the management would be entitled, if they thought fit, to discontinue their use, according to the rule: but I do not think they would do so.

1628. But there has been a case, I think, in which they were permitted to disuse lamps, at the request of both owners and employees. Would you prohibit that?—No, I do not think so. I think the rule would be stiff enough.

1629. Taking it the other way, with regard to that, if there had been no explosion of gas within twelve months, the obligation to use safety lamps would not be continued?—No, it would be removed.

1630. With reference to the testing of the lamp, as to the character and construction of the lamp, your difficulty is this, apparently, that there are cases where the use of safety lamps is not obligatory, and therefore you cannot proceed under General Rule 8, that the lamp is not properly constructed?—No, I think you could not.

1631. That is your difficulty, and therefore you would provide that in those cases General Rule 8 should apply, that is to say, in all cases where there has been an explosion of firedamp?—That General Rule 8 should apply, with the addition of the twelve months' period.

1632. But if General Rule 8 applied compulsorily, you would have all the remedy you require as to the construction and the character of the lamp, would you not? Your difficulty was that General Rule 8 says: "Where lamps are required," and then where they are required they must be of a certain character: your difficulty, I understood, was that in some cases where lamps were put into mines where they were not required (that is to say, where the rule did not require them) you then had no control over those lamps, because if you attempted to take proceedings when the lamp was not in a proper condition, they would say: "We are not bound to have lamps at all," and the complaint would fail. That is your difficulty?—I had not that in view, but I see now that something would have to be done in that direction.

1633. Supposing it was a case where the use of lamps was compulsory, would you not have all the power you required under Rule 9, except that you want this addition—you want to say that instead of it reading "safely carried against the air-current ordinarily prevailing," it should be "against an air-current of a specified velocity"?—Yes, I wish that.

1634. But, subject to that, wherever lamps are at present compulsory, the Act gives you all that you want?—Yes, only I want to strengthen that "compulsory"—I want it to apply more generally.

1635. Yes, I understand that; and I understand that where you want it to apply is where there has been any explosion of gas within twelve months?—Yes.

1636. Subject to that being the test, and the character of the lamp being that it would stand a certain velocity of air, the present law is satisfactory to you?—I think that would make it more satisfactory, but there still would be a little weakness about it, I see.

1637. Then with reference to the testing of the lamps, you think it is desirable that there should be some testing, either at a public institution or an institution appointed by the Government, where the inspector could send a lamp to be tested?—Yes, I think that is only consistent; where we call upon them to use lamps and say that they shall be carried against a certain current, there should be some way of testing.

1638. Do I understand that you wish that, if the lamp did not stand that test, that should be taken as a conclusive proof that the lamp was insufficient?—Yes.

1639. Then, if it was not tested by the Government, but was tested at some institution, it would have to be very carefully defined as to what the test was?—I had not any very strong opinion whether it should be a test set up by the Government specially, or whether it should be a test sanctioned by the Government. What I meant was that it would be easier to send lamps to particular places, say Newcastle, Manchester, or Wigan, wherever there is a mining school, and I think it would rather ensure the work being very well done; there would always be somebody there who would take an interest in it.

1640. With regard to shot firing between shifts, there are difficulties, as you have pointed out; where a man is working in coal and he can get the place ready for his shot early in the day, he would have nothing to do during the rest of the day if the shot had not fired?—There would be a good many difficulties in cases of that kind.

1641. Yes, that is one. That would very often happen, would it not?—I am afraid it would.

1642. So that the result of that would be that that man would have nothing to do during the rest of the day if the shot had not been fired?—No, but it would be very awkward for him in cases where he fires and it is necessary to fire more than once in a shift. Of course, if it is only necessary to fire once in a shift, the thing can be manipulated; he can prepare in the daytime, and shots can be fired for him, and then he can come in the morning and fill up his stuff, and prepare again for the evening when the next shot is fired, and that goes on from day to day. We carried that out pretty considerably for years in Lancashire in one of the most dangerous seams, but that was a hard seam, where men could fire all their shots together.

1643. In that case the man was occupied during the day, and he lost no time?—That is so.

1644. Are there cases where the men fire their own shots?—Yes, in some mines.

1645. You would disapprove of that?—Of course it is only in mines where they do not use safety lamps, and where they use candles. If they use candles there is no harm, I think, in a man firing his own shot.

1646. So that you do not see that you could recommend any General Rule prohibiting shot-firing except between shifts?—What I said was that you might prohibit it in stone work, except between shifts.

1647. Not in coal?—Not in coal.

1648. Then, with regard to the Timbering Rules, you said that you think the distance from the face which the manager prescribes should be subject to the approval of the inspector?—Yes; not only the distance from the face, but the distance from each other as well.

1649. Under the General Rules there are cases where the inspector can exempt a person from carrying out of a rule. Do you know any case providing that the inspector shall order the performance of any rule or direct as to how any particular rule should be carried out?—Of course there are such rules; take the first General Rule. The inspector sees what the Act says for him—that the ventilation must be adequate. Well, he has that to go upon. With regard

Digitized by Google

Mr. H. Hall.
25 July 1906.

to the Timbering Rules, it is purposely left in the discretion of the manager, so that you can hardly, as the thing stands, tell the manager what the distance ought to be. There are objections, of course, to the inspector taking it upon himself; it is putting a lot of responsibility on the inspector, and I know at our meeting the other inspectors did not seem to like it. Well, I do not like it.

1650. I suggest to you two objections: First of all, it is putting upon the inspector responsibility for the management of the mine, but is it not also putting upon the inspector an absolutely impossible duty?—I don't think so.

1651. How many collieries are there in Lancashire?—It would only amount to this: The manager would have to submit to the inspector the distances that he proposed should be established for his different seams, and I, as an inspector, would approve them or otherwise.

1652. How often is that to be done?—It would not have to be done very often. When he put up the notice that he puts at the pit-head about the particular rule, it would have to be approved by the inspector.

1653. Is that a duty that you would like to entertain?—I should not like it, but it could be done.

1654. Do you not think there would be a great danger in that case of the manager thinking that, having got the inspector's approval, he was doing all that was right?—Yes, there would.

1655. That requires a little further consideration, does it not?—Well, as I put it, we want to get at them somehow.

1656. With reference to haulage roads, you do not suggest that all existing haulage roads should be widened or enlarged, do you?—I suggest not all existing haulage roads—some of them are wide enough at present—I recommend that the narrow ones should be widened, if the haulage exceeds a certain speed, or if it is running against the hill.

1657. Would there be a time given for that?—Do you mean in which to do it?

1658. Yes?—The rule would come into operation some time after it was established, I suppose, the same as was done with the Explosives Order.

1659. I think I understand you that with reference to the Special Rules you think a good many of the present Special Rules should be made General Rules?—Yes.

1660. But do you agree that the Special Rules are intended to detail the various duties to be performed by the various officials for the purpose of carrying out the Act and the General Rules?—Instructions to Officials—that is the chief intention. But we must not lose sight of the fact that there are a great many Special Rules—perhaps too many, some people think—but it is rather difficult to lessen the number. In addition to that there are what are called bye-laws established. Here is a sample of Shot-firing Rules, which are all in addition to the Special Rules of the colliery—(*handing in book*). The men are obliged to attend to those; if they do not they are liable to be convicted.

1661. No, I beg your pardon, you cannot bring a man before the magistrates for breach of a bye-law; you can fine him if he agrees to be fined, but you cannot bring him before the magistrates?—No, but they take him in this way; there is a Special Statutory Rule which says that he shall obey instructions.

1662. All reasonable orders?—Yes—and those are instructions and reasonable orders. Then they summon him under the Special Rule.

1663. You think that the men ought to have some voice when any Special Rule is to be established?—Yes, they ought to have a voice.

1664. Have you considered any means by which they should have that right?—Yes; that the rules should all be established on the same plan as is practised when the owner of the colliery proposes the rules. When the owner of the colliery proposes the rules they have to be put up for fourteen days, and there is an invitation to the men to say anything they wish to on the subject.

1665. Then you approve of that system, except as to the times and opportunity for objection?—I go this far: I say that when the Secretary of State proposes any rules the rules should be put up.

1666. Yes, they are. Subject to that you have no further suggestion to make?—No.

1667. One further question with regard to examinations; you think that the experience abroad should be counted in the five years or the three years, as the case may be?—Yes.

1668. Would you not have it certified by the Home Secretary as to where that experience is to be gained?—I do not think it is necessary. I think I should leave it to the examination boards. I do not think there would be any difficulty in getting to know whether the candidate really had experience.

1669. Would you not prescribe the particular places abroad from which his experience should come?—You see he still has to pass an examination.

1670. Yes, but do you not think it necessary to prescribe the particular parts abroad where his experience should be got?—No, you could not, very well. His experience might be at a colliery or at a metalliferous mine at some place.

1671. (*Mr. Enoch Edwards.*) I understand that you do not view with very great favour examinations of the mines by workmen?—Well, it is a fact that I hold rather a different opinion from most of my colleagues about it.

1672. Some of your colleagues would make that examination compulsory?—Yes. I should not. I think you cannot very well take upon yourselves the examination and interference with the management and then ask for compensation in case anything happens.

1673. Is that opinion based upon your experience in Lancashire?—No, it is based upon something that happened in South Wales, chiefly.

1674. I gather that in Lancashire you have only had one colliery which has put the rule in force?—Only one. There may have been another which has not come under my notice. I dare say there have been several who have done it for a short time; but I believe at present there is not another case.

1675. In dealing with the question of fines, I think you said that there had been some 80 cases of men fined at the collieries, and five or six cases taken to court?—Yes, by one firm.

1676. At the particular firm or colliery?—Yes. For your information I may say I asked the question at another colliery the other day, and I found there had been 500 odd fines—all paid over to some object.

1677. (*Chairman.*) Is that in one year?—In one year.

1678. (*Mr. Enoch Edwards.*) I understood you to suggest that this was a procedure of dealing with men which met your approval?—Well, I quite see that prosecutions would be better, but it is not practicable to carry out prosecutions in all these cases, so you have to be content with something to take the place of prosecutions.

1679. If it was a breach by the colliery owners where you, on behalf of the Home Office, would be called upon to prosecute, would you suggest that they should be treated in that way. If it was a breach by the colliery owner and not by the workman, and you were instructed to prosecute, would you suggest that you should settle the matter in that way?—By fine—no, I could not then.

1680. Then would you have one rule to deal with the workmen and another to deal with the employers?—You see it is quite practicable to take up all the prosecutions against the colliery owners because there are not so many of them, and it is my special work to prosecute. I mean there would be no taking away of the man from his duty, that is the important point that the colliery manager would be taken away from his duty.

1681. If you prosecuted he would be taken away from his duty?—Yes, he might be for a day or two, perhaps.

1682. Why should he not then arrange with you for a fine to be given to some hospital at Wigan or elsewhere?—I have not looked at it in that light, but I do not think it would be likely to occur. This is my opinion: you put all kinds of responsibility on the certificated manager for carrying out this Act of Parliament and all the rules, and as an Englishman I think

Digitized by Google

it is rather unfair to say that he shall not adopt a particular method which he thinks best to enforce discipline.

1683. Of course all those fines so extracted from the men are illegal?—Do you mean under the Truck Act?

1684. All such fines are illegal?—No, I do not think they are.

1685. Do you think it is a good thing for an employer to hold this weapon over a man's head for all sorts of conceivable breaches, and that without proof he should have the power to fine?—Well, I agree there are objections to it, no doubt; but you have got to enforce the discipline somehow, and I think it is an effective way of doing it; although I admit that some managers fine very much fewer times than other managers do.

1686. Is it not rather surprising to be told that there have been 500 fines at a given colliery in one year?—Yes, it did surprise me.

1687. Do you think it is possible that many of those fines would never have been sustained in a court?—A great many of them would not have been sustained, and could not have been taken into any court, because they are for things that are not included under any rule.

1688. Does it not give into the hands of the manager a power to deal with men which was never intended to be given by Act of Parliament?—It gives him a power, no doubt; but I do not think myself that it is particularly hard on the man. The process is this: the under-looker reports that so-and-so has done such and such a thing in the pit, and before he starts work again he has to see the manager. Well, the manager has the man who has been reported and the man who accused him brought before him, and he hears what they have to say; he has no particular wish to fine the man; he is not going to get any benefit out of it; but he looks at the matter as well as he can, with a kind of rough and ready justice, and if he thinks the man has not committeed the offence, he says, "Well, we will let you off; I do not think you have done anything very wrong." In other cases, if he thinks he has done anything very wrong, he says, "Now, you can take your choice; you will either be fined 5s., or I will take you to Wigan Police Court, and you shall be prosecuted if you prefer it, or you can leave, if you prefer it," and the man 99 times out of 100 prefers to be fined as being the least evil of the three. He always has the option of being prosecuted if he likes.

1689. Was it contemplated by the law that the manager should have the power to fine him in the office, or even to discharge him for any of those number of offences for which he is fined?—I think he could discharge him for any serious offence. He would not fine him for nothing.

1690. You do not suggest to me and to the Commission that there were 500 serious offences in one year at the colliery?—Well, supposing there are 2,500 men employed, that is to say, that one man in five was fined in that year once. I admit it is a large number. In the other case where there were 78 fines they have 3,300 men.

1691. Yes, but you would not like to suggest that there have been 500 serious offences against the rules of the colliery in one year?—I looked through a part of the list, and they were all things which you might fine for, and all of them were things that a man knew he ought not to have done.

1692. But not serious offences?—In fact, a good many of them were shillings and two shillings and half-crowns. The regular fine seems to be about half-a-crown.

1693. Have you had much experience of mining operations in the neighbourhood of places where there are known to be large quantities of water accumulated?—Do you mean accumulated in neighbouring collieries?

1694. Yes?—We have such cases around Wigan; a lot of the old mines around Wigan are now full of water.

1695. Do you think that the provision in the present law is sufficient to guard against any possible danger?—I think if they strictly carry it out it might be sufficient. Of course it could not guard against any *possible* danger. After you have done your best you might be taken in.

1696. How would you prescribe against danger of inundation; that is to say, you prescribe now that you shall drive bore-holes, and so on?—Yes, we prescribe that now.

1697. You may be in the near neighbourhood of water, but the plans of the coal mine may be defective, and somebody may have stolen someone else's coal years ago. How would you suggest that that should be dealt with?—Of course, it was intended to deal with it by the rule that is in the Act of Parliament. So far as I can see at present, if that rule is strictly carried out it would prevent the danger of inundation in the majority of cases. But, of course, if the neighbouring colliery has worked more than 40 yards towards where you are working you are done at once—before you start boring you are into it, and there is no remedy. If the plan is wrong, there is no possible means of putting an old plan right; the workings are all closed up, and there is no possibility of making a re-survey or anything of that kind.

1698. In the face of the experiences of the past few years (of course you are aware that there have been some very serious disasters, and that large numbers of men have been entombed), do you think the present rule is sufficient when approaching workings in which there is likely to be found water?—I think you would do better to ask the inspector who has had those questions under his care: I mean, he may have seen some weakness that I would not see. I know such things happen in Staffordshire. We have had to bore very frequently: we have to bore frequently in metalliferous mines. We have had only one mistake, and that was a case in which two or three men were drowned: the mine was never inspected for the purpose of seeing whether there was any water.

1699. (*Mr. Cunynghame.*) Would you ask the witness whether he considers the present statutory powers of inspecting plans are sufficient?

(*Mr. Enoch Edwards.*) Yes, that is what I rather wished to lead up to. Having regard to the fact that there is so much water found in mines, are the powers now sufficient to guard against that risk and danger?—They may not be sufficient, but they are apparently about all that you can do. Do you mean that you would start boring more than 40 yards away?

1700. I am putting it to you as to what you think, as an inspector?—40 yards is a long distance for a plan to be wrong. But I think Mr. Atkinson could tell you more about it than I could. You see in Lancashire we are in this position: the coal is let by the acre, and not by the ton: there is the landlord's surveyor checking the plans and there is the colliery surveyor checking the plans. Our plans in Lancashire now, I should say, are absolutely correct, and between the one and the other the matter is perfectly watched. It is where you go on by the ton that the plans get into a disorganised state.

1701. Yes—those very old plans of about 40, or 50, or 60 years ago?—Yes, of the adjoining mines.

1702. Mr. Ellis asked you a question about falls of roof, in answer to which you suggested to the Commission that when everything was done that was possible by employers and workmen there would still be accidents from falls of roof?—Yes, I am afraid so.

1703. You or your assistants attend most of the inquests, or all the inquests?—Yes.

1704. What percentage of the accidents from falls during recent years could have been avoided?—Do you mean if we could have foreseen by ordinary care?

1705. If it is a question of timbering and if first of all, the employer provides sufficient timber, and the management and the workmen always set it: assuming that everything is done, what percentage of those falls and fatal accidents could have been avoided?—It is rather difficult to say, but there are a good many cases where you could easily see that if the people had been more careful, and what I might call reasonably careful, the accidents would have been avoided. There is a good deal of risking things especially by the men. I forgot to mention one thing that I do suggest with reference to those falls, that there is a new rule which we made a year or two ago with reference to drawing timber. We then recommended, or laid down, in fact, that timber should be drawn with a gablock and chain, but the option was left with the man whether he should use it or not. I have come to the conclusion that in drawing timber it ought to be

Digitized by Google

Mr. H. Hall
25 July 1906.

drawn with a gablock and chain in every instance. I have made inquiries, and have come to the conclusion that it is quite practicable, and several collieries which I know of have now adopted it. There is now a much better mechanical appliance for drawing timber, and it is almost as quick as drawing it with a hammer. There are a good many lives lost in drawing the timber.

1706. But where it is a question of drawing or setting timber I suppose we may take it that they discovered after a fall that something might have been done to prevent it, but it was not possible for them to discover it before the fall?—That often happens.

1707. That is to say, in faulty roofs?—Yes, and in hidden slips and that kind of thing. That is why we think that systematic timbering will be better than the old plan, because it provides against those hidden things.

1708. Generally that is adopted now, is it not?—Do you mean systematic timbering?

1709. Yes?—It is the law now: they must systematically timber.

1710. Of course it is a question of distance, I understand: it is a matter which is left to the discretion of the managers?—That is left to the managers.

1711. How many collieries have you in your district over which you preside as inspector?—225 coal mines.

1712. How many men are employed in them?—61,359. Then of course I have in addition a large number of quarries, slate mines, and metalliferous mines.

1713. Do you and one assistant inspect those mines?—Yes.

1714. And I understand the other two inspect the quarries?—Yes.

1715. Can you and your assistant give sufficient time to inspect 225 collieries and attend all inquests?—Well, not quite: we could do with a little more assistance in Lancashire with advantage, I think.

1716. Can you visit all those collieries and make an inspection of them once a year?—No, I do not try to. A large number of those collieries are what I call collieries that require looking after—they want inspecting more than once a year.

1717. If you or your assistant were inspecting a colliery, it would not be such an inspection such as the workmen make and as is recorded in that book?—No; that would take us 22 or 23 days, or I am afraid it would take me longer—it might take me 40 days.

1718. So you are prepared to assume that there would be a number of mines worked and large areas worked, which the inspector never sees at all?—Do you mean the Government inspector?

1719. Yes?—He is like a school inspector—he takes a little bit of it and samples it, as it were. The school inspector samples the children because he cannot examine them all; so the Government inspector samples the coal mine because he cannot examine it all. But mind, I have been at the work a good long time, and when I look at a plan now I know pretty well which is the part I should go to.

1720. But in your case you suggest there are not sufficient inspectors for your district to do what you yourself think should be done?—No, not quite: I should like a little more assistance.

1721. You would not go quite so far, perhaps, as the Miners' Federation suggested in their proposed Amended Coal Mines Act, namely, that there should be one inspector for every 10,000 workmen?—No: I think you would get into the same difficulty that you do by having too much inspection by the men—you take the responsibility away from the management.

1722. If the Bill suggested that there should be an inspector for every 20,000 men employed, you think that would meet it?—You see here there are 61,000 men employed as against two of us inspecting: that is 30,000 to each one—is it not?—only we are forgetting that at any rate, so far as I am concerned, Mr. Mathews, the coal assistant inspector, devotes his whole time to it, but I have to give half my time to other things.

1723. Yes. You think there is not sufficient assistance in your district?—No, not quite. I think it would be better with a little more.

1724. (*Mr. Cunynghame.*) What is the proportion of men to each inspector now? What is the average number at present, taking it throughout the whole of England?—There are, I think, about 800,000 people employed.

(*Mr. Cunynghame.*) And there are 40 inspectors: it is just about the proportion, is it not? That is just what struck me in reference to Mr. Edward's question. There are 40 inspectors, including assistants: I was struck by your figure, Mr. Edwards, and that is the reason I mentioned it. You ought to go further than that, and the witness would go further.

(*Mr. Enoch Edwards.*) Yes, I was suggesting the Bill to him.

(*Mr. Cunynghame.*) You suggested a smaller number of men for your purpose?

1725. (*Chairman.*) I do not think you have told us how many years you have been an inspector?—I started in 1873.

1726. Was that an inspector or sub-inspector?—As an assistant inspector in South Wales. I only stayed there 18 months, and I have been in Lancashire ever since as principal inspector.

1727. That is since 1874?—Since 1875: I went there in January, 1875.

1728. As a principal inspector?—Yes: I have been principal inspector 12 years longer than any of my colleagues.

(*Chairman.*) I should like to ask about the question of plans. We pressed Mr. Martin a good deal with regard to plans, because he was very strong on the point that on occasions of inundations he had found that the mining plans were inaccurate, and that he had no sufficient means of testing their accuracy.

(*Mr. Cunynghame.*) The Home Office can produce some plans of abandoned mines which I really think are quite disgraceful in the way they are prepared, and which are of no assistance to anybody. Mr. Hall, I daresay, would be able to give some evidence with regard to that point.

1729. (*Chairman.*) Do you think that plans of abandoned mines are incorrect or not? Have you discovered whether the plans sent up are correct or incorrect?—I have not found that any of them have been incorrect. Of course, it is very difficult to discover that; I have no means of knowing.

(*Chairman.*) Mr. Martin said in his evidence that these plans are not properly made, that they are made on pieces of paper which have been gummed on, and that it is perfectly impossible to suppose they can be very accurate plans, if only on account of the shrinkage in the paper.

(*Mr. Cunynghame.*) The paper on which they are prepared sometimes is only tracing paper impregnated with oil, and that paper would be cracked to pieces and gone in fifteen years' time.

(*Witness.*) Was he speaking of coal mine plans or metalliferous mines?

1730. (*Mr. Cunynghame.*) Of coal mine plans which are sent in and which are taken at the office as the only guide. Have you not amongst the plans of abandoned mines plans which are sent in which would not be of very much use to posterity?—Yes, I think I have.

1731. I mean are they not occasionally mere tracings of plans on oil paper, which we know will crack to pieces?—It will shrink.

1732. Not only shrink, but it will of its own nature crack to pieces entirely in a few years?—Yes, but I send those back and have them put upon cloth.

1733. Under the new provisions that may have been done lately?—Yes.

1734. But still, are not the plans in many cases of a very imperfect character?—I do not think that can be said of those plans which are sent to me, unless they are very old ones which go back a very long time.

1735. (*Chairman.*) What Mr. Martin said was that there is really no means of enforcing the law and of seeing that correct plans are made. He said that the law is that an inspector can go down and verify the plans. At Q. 1271 he was asked: "Could you yourself as an inspector go down and verify the plans so far as you were able to do so? (A.) Well, I would not

Digitized by Google

undertake to do that work as a surveyor. (Q.) No, but could you employ any qualified surveyor to do it? (A.) No. (Q.) You could just do it yourself? (A.) An inspector can do it. The Secretary of State has no power to send anybody underground except by permission of the owner. (Q.) And the inspector has no power to send anybody underground except an assistant inspector: (A.) Yes." Then he says that he could ask the assistant inspector to make an examination, but that the assistant inspectors are not persons who would be capable of verifying a plan?—I think very generally they would be able to do so; they are all taught surveying.

1736. Would you suggest that it would be a reasonable thing to require on the application of an inspector that a qualified surveyor should be sent down to verify any plan that the inspector thought might possibly be faulty?—I think an assistant inspector would be quite qualified to say what distance the workings had extended in a particular direction, and that would be all that one would want in regard to a question of water; of course, always supposing that the workings are open for him. If the workings are not open, neither a qualified surveyor nor anyone else can test it.

1737. (*Mr. F. L. Davis.*) Mr. Edwards asked you how many mines you had in your district, and you gave the number as 225. How many of those would be small mines employing very few men?—Well, if you divide the number into 61,000 you would get an idea.

1738. No, I do not think so. My point is that out of that number there are some large companies owning big mines, and there would be probably some small mines. Out of the 225 mines are there a number which are small, and which you would not consider it necessary to inspect every year; that is my point?—The majority are large; they are all of such a type, or very nearly all, that the mine itself should be inspected. But, of course, an inspector gets familiar with the mines in his district, and with the type of manager. I might think it necessary to inspect a particular mine three or four times in the case of a certain man over it, but with other mines I might know that with regard to the particular mine the man knows as much about mining as I do, and I might be satisfied that he did his very best; in those cases I would not inspect so often.

1739. I asked the question because Mr. Martin stated that out of the number of mines in his district there was a considerable number of very small mines employing very few men, and that he did not consider it necessary to make an inspection once a year or anything like it?—We should have a few that are quite insignificant, especially in North Wales; but in Lancashire I cannot recall one that I would not think it necessary to inspect. I think I go more by the character of the work that I have seen before, and the character of the man, than by the size of the mine.

1740. I want to ask you one question upon the subject of plans, as that has been dealt with just now. Do you consider that it is advisable that the Secretary of State and the Home Office should have power to check the plans of the various mines of the country?—Do you mean the working plans?

1741. Yes?—I think there possibly is that power now. I think that if an inspector had reason to believe that a plan was incorrect, that would be a danger, as it were, and he would have the right to have the plan substantiated in some way.

1742. (*Mr. Cunynghame.*) There is a duty to keep a plan?—To keep a correct plan.

(*Mr. F. L. Davis.*) But I thought Mr. Martin's complaint was that the Home Office had no power to set those things right—to correct plans.

(*Chairman.*) They have no power to send anyone underground except by permission of the owner. That was Mr. Martin's answer. He said: "The Secretary of State has no power to send anybody underground except by permission of the owner," and he said the only one who could do it was an inspector or an assistant inspector.

(*Mr. Cunynghame.*) I should say the difficulty arises in this way, that although there is a duty to keep a correct plan, the sort of plan which some people consider a correct plan is of such a character that, as I could show you from plans at the Home Office, nobody could make anything of them.

(*Chairman.*) Then I suppose the Home Office could insist upon correct plans being made.

(*Mr. Cunynghame.*) It is very difficult. If you bring a man before a magistrate for not keeping a correct plan, it may be a very wretched plan, but he will say it is correct, and it is very difficult to show that is incorrect.

1743. (*Mr. F. L. Davis.*) That is rather my question, as to whether you consider it necessary or advisable that the Home Office should have the power of employing first-class surveyors and checking these plans. Mr. Martin put it that it was a national question; I ask you is your opinion the same?—I cannot say that it is. I do not think that, at any rate in my district, there is any necessity for any such power. As I said before, the plans are kept absolutely correctly.

1744. (*Mr. Wm. Abraham.*) Supposing they were not correct?—If there was good reason to suppose that the plan was incorrect I think I have the necessary power.

(*Mr. Cunynghame.*) There is power under Section 34, Sub-section 3. It says that they shall mark thereon the state of the workings of the mine, and if they conceal any part of their workings and produce an incorrect plan or section then the owner can be punished. But the point, if I may say so, is this: The question of a plan being imperfect or inaccurate is one thing, but I should like to ask the witness, would it not be a good thing that colliery owners should be bound, where necessary, to keep plans upon a certain scale.

(*Chairman.*) It must be on a scale of not less than that of the Ordnance Survey of 25 inches to the mile, and so on; that is provided afterwards.

(*Mr. Cunynghame.*) I should like to go into the question, because some of the plans are not on that scale at all, and they are most insufficient and inaccurate plans.

1745. (*Mr. F. L. Davis.*) Mr. Martin took the view that the plans were very badly kept indeed, and he was very strong on the point. I put it to you in this way: Supposing the Home Office had power to check all these plans, would it not entail a considerable amount of work and take a considerable amount of time?—It would indeed.

1746. Mr. Martin said that they should be checked most carefully, and he did not think he had sufficient staff to do it; he thought there were many surveyors in the country who were not capable of doing their work properly. I put it to you that if these plans are in such a state as that, and had to be thoroughly checked, it would take a great deal of time?—I understood that he was speaking of plans which had been put in of abandoned mines.

1747. No, of all mines?—Was he speaking of working plans?

1748. Yes, working plans of all the mines in his district—of course he was speaking only about his district. I put it in this way: Supposing he is right, would it not take a considerable amount of time on the part of any experts to thoroughly check those plans?—It would take a good deal more time than the whole of the other inspection put together, I should think.

1749. That is what I thought. I should like to understand clearly what is your opinion as to ventilation. There is only one point that I want cleared up. You have told us that you would make it illegal to work in any part of the mine when there is a cap in the air-current?—Yes.

1750. I take it that it is quite possible for there to be a small cap on the lamp in one portion of the mine, and that in other portions of the main ways it disappears and you do not see it?—I draw the distinction definitely by the current passing along.

1751. The air-current?—Yes; if it shows in that, that is the mischief.

1752. I want to know whether you mean this: supposing you found through the mine in the working

Digitized by Google

Mr. H. Hall. 25 July 1906.

places generally there was no cap, but at the very point of the return air-way, where the air goes up the up-cast shift, there was a very slight cap on the lamp, do you mean what you say to apply then—do you call that an air-current then, after it has finished all its work?—Yes, I should still call it the air current, but there would not be any necessity for men to be working there. They would not have to be withdrawn, because there would be nobody there. The rule would not be a hardship in a case of that kind.

1753. My point is this, that you might have the whole of your workings practically free from gas and showing no cap at all?—Yes.

1754. But where the air has finished the whole of its circuit and is going up the up-cast, it might show a very small cap?—Yes.

1755. But, as you say, the men would not be working there, and therefore that would not guide you as to the men working in the rest of the pit?—No; that would not affect the case.

1756. With regard to the question of re-capping ropes, is it your experience that ropes, sheaves and everything appertaining to the winding are regularly examined in your district. I do not say "tested," because they cannot, of course, be tested for strain?—Yes, they are regularly examined, and the accidents are few; but still, you can quite see that if the capping of a rope will give way at half the breaking strain it is something that should be put right, because it is possible to get the rope to bear the whole breaking strain, and get the rope to break before the capping. From the owners' point of view, why should you buy a rope to stand a strain of 100 tons if you reduce it down to 50 tons by the cap?

1757. Do you agree that in your district, so far as they possibly can, the men regularly examine and test all these ropes and the important parts?—Yes; as a rule in Lancashire the colliery managers know more about mechanical engineering than they do in any other coal area.

1758. I was not sure whether I understood you correctly as to a point upon which, I think, Mr. Cunynghame asked you a question, that is, as to whether nearly all the mines in your district are dusty mines?—In Lancashire they are; in North Wales they are not; perhaps a fourth of them in North Wales are dusty and ninety per cent in Lancashire.

1759. But it was in regard to Lancashire that you gave your figures of explosions, and that in 3½ years you had no fatal accidents?—Yes, and that included North Wales. There has not been one in the district for 3½ years.

1760. And in Lancashire nearly all the mines are dusty?—Yes.

1761. (*Mr. Wm. Abraham.*) In your opinion, is not the keeping of corrrect plans essential to the safety of the men working in collieries, especially where they are approaching water?—Yes, certainly.

1762. That is to say, that they should be as complete a supervision of those plans as possible, and that men should be got to do it. It is more a question of surveyorship than of management?—Yes.

1763. It need not be done by the inspector; you may have a class of men specially trained for that purpose?—You mean a class of man who has some guarantee in the way of a certificate, or something of that kind?

1764. Yes?—You might have.

1765. And you would in that way relieve the inspector from that part of his duty, or, if you like, let the inspector have the final supervision of the plans, but provide that he should have men at his command to see that correct plans are being kept?—Do you mean that the inspector could call upon some particular surveyor to go down the pit and make a survey? There would be great objections to having a stranger coming and surveying a particular pit.

1766. But you said that it is essential for the safety of lives that it should be done?—It should be done, most certainly, but I think the inspector, as the matter stands now, ought to be able to bring it about.

1767. By whoever it should be done, it is your opinion that it ought to be compulsory?—You should have them correct.

1768. I suppose in your opinion the size of the colliery is not a criterion as to its safety or as to its being a dangerous one?—No; they are generally most dangerous when new seams are being opened.

1769. Then it may be a very small one?—Yes, it might be quite small.

1770. Would you suggest that fining men for breaches of rules should be substituted in the Mines Act for prosecution?—No.

1771. You would not carry it as far as that?—No, I should leave it as it is. The manager has the option, and I think he has a right to a certain amount of option in the matter, as to how he is going to enforce the rules.

1772. But do you not think from your experience of men, which is a great one, I admit, that when a man knows he will have to go before his manager, before whom he has been over and over again, he is more likely to be careless than he would be if he knew he had to go before a court of magistrates?—Yes; he is more afraid of being taken before the magistrates than he is of being taken before the manager, there is no doubt. I quite admit that probably a good many less prosecutions would effect the same object, but then there would be a good many—very many more than there are now.

1773. That is your opinion?—Yes.

1774. That it is essential to the keeping of the rules and the discipline of the colliary, and also for the preservation of safety?—Yes, discipline must be kept.

1775. Then there can be no two opinions of which of those two ways is the correct one and the better one?—Well, they are both good; the fine system effects it, but perhaps it is not so effective as the other method.

1776. You will pardon my putting it in this way, because I cannot put it in any other way. Do you not think that an inspector should have power to stop that kind of thing, which is, after all, a contravention of the Act?—Do you mean power to stop fining?

1777. Yes?

(*Mr. F. L. Davis.*) It is not a contravention of the Act.

(*Mr. Cunynghame.*) As I understand it, he only fines by agreement of the men. It is not a contravention of the law to inflict a fine. It is a question whether it ought to be made so; but it is not so at present, if you put up a notice of the fine which you are going to inflict and comply with the conditions of the Act of 1896.

(*Mr. Wm. Abraham.*) After all, are not the collieries exempted from that Act?

(*Mr. Cunynghame.*) No.

(*Mr. Wm. Abraham.*) Then you and I do not read it in the same way.

(*Mr. Cunynghame.*) To make the question clear, I should say that for some time it was very doubtful whether the old Truck Act of 1831 did not forbid fining, but the question went again and again to the law officers, and finally the Court of Appeal decided that it did not, and that you might fine, and that therefore it could be applied to the collieries also. So that the collieries have a power, as every other employer has, of fining the men. Afterwards the Act of 1896 was brought in, which said that you should not do it unless your fine was reasonable, and unless you put up a notice saying that you were going to fine. That is the state of the law.

(*Chairman.*) The man may agree, you say?

(*Mr. Cunynghame.*) The agreement would be a Common Law agreement, and all he has to do is to work in the place where it is properly posted up, because the point is that he should know the conditions. If he cannot be shown to have known the conditions they cannot fine him.

(*Chairman.*) If he chooses to agree to be fined he may sign a paper to show that he agrees to be fined?

(*Mr. Cunynghame.*) Yes.

(*Mr. William Abraham.*) As to the question of whether there is a contract with these men that they will agree to be fined, we have not got that contract, and the state of things is very curious. Mr. Hall has been good enough to say that this system of fining is the least effective to carry out discipline and safety of the mine.

Digitized by Google

(*Mr. Cunynghame.*) Yes: I was not saying anything with regard to that.

1778. (*Mr. William Abraham.*) That is all I want. I do not wish to have anything more admitted than that for my purpose. I think you said that any new type of lamp should be tested for you?—Yes, I think there should be an official test.

1779. In your opinion is it desirable that an examiner—a fireman—should have a different type of lamp to that which the workman has—a more sensitive lamp?—Well, he generally has a different type of lamp.

1780. But that is not what I refer to?—Do you mean that the firemen should have a lamp which would show a cap more readily than the collier's lamp?

1781. Yes, that is exactly what I mean?—If he was burning the same kind of oil I think the cap would be the same in either case, whatever lamp he was using. It is a question of the oil he was burning: if he was burning a spirit, a fireman's cap would be more visible than the collier's cap—probably the collier would not be able to see it at all in that case, and the other man would.

1782. My question is, whatever is the reason of the difference, is it desirable that the fireman should have one kind of oil and one kind of lamp, and that the workman should have another, in the same place?—I do not think it is material, so long as it is a proper lamp.

1783. Would it, in your opinion, be a proper thing that the workman should be working with a lamp which is more sensitive than the one used by the fireman?—No, it should be the other way.

1784. You would condemn that?—Yes.

1785. I think you said you would prevent all shot-firing in stone everywhere, except between shifts?—I am not very strong on that, if we are going to carry out all this watering, and so on. There is no doubt that it would be a very great improvement as regards safety, but whether it is reasonable to ask for so much at once is a question.

1786. Never mind "at once"—the question is the safety of life, is it not? I think, however, you have given me your opinion?—In a great many collieries which I have to do with they do not fire any shots in stone except between shifts, and those are in the better managed collieries: they find time between the shifts to fire in the stone—except in the tunnels.

1787. And that is a desirable condition of things, in your opinion?—Yes.

1788. But would you allow the question of cost to interfere with bringing that about anywhere?—No, I would not. If it is reasonable in one district, it is not very unreasonable in another.

1789. I thought you would say so in the end. Is it now your opinion that the manager is the one person who should have the power of fixing the distance between timbers of all kinds?—No. I have said that from my experience since this rule was brought into operation I think it is unwise that he should have absolute discretion in the matter. That applies only to an exceptional number of managers: I do not wish to charge the managers generally with anything of the kind: it is quite the exception, but we want to have the power to bring that exception up to the other standard.

1790. Yes, that is quite right: we are here trying to find the best conditions for all. Notwithstanding what is said of us in South Wales, that we are rather reluctant in carrying out these rules, you have found it to be the practice in North Wales that the manager was not willing to place sufficient timbering?—It was, certainly.

1791. I think you have said that it would be only fair that the workmen as well as the employers should have a voice in establishing special rules?—Yes.

1792. Have you any special rules in your district regulating the employment of unskilled workmen?—We have a general rule bearing upon that point, but I do not think there is anything in the special rules.

1793. Have you a general rule in your district which is different from the other districts?—No, the same as you have: it is in the Act of Parliament.

1794. Is there any fixed age in your district that a young man has to arrive at, say, before he is allowed to be employed in the face alone, and to have the responsibility of a working place? I think we were told it is so?—I do not think we have.

1795. With regard to coroners' inquests, in your long experience have you not known some cases in which the inquiry was rather unsatisfactory, and in which all the facts were not found?—No, I do not know that I have. Of course some of the facts may not have been found, although there may have been the best intention of finding them: it is rather difficult to get at all the facts. But I think the coroners, as a rule, are very suitable men for holding such inquiries, for this reason, that they have for many years probably been holding inquiries into small colliery accidents, and they have got to know far more about mines and miners than a stranger would know who might be brought in to hold an inquiry. I do not think you could get better men than the coroners: there may be cases where it would be advisable to have power to hold another inquiry, no doubt, if there was good ground.

1796. Then what, in your opinion, would be the good grounds for the second inquiry, putting Section 45, if you like, into force?—I am afraid I could not say. I only remember one, and that was in Scotland, where there is no coroner, so far as I remember—it is rather a different thing. In that case, I think, there was an inquiry of that kind at Blantyre, which was held by Mr. Dickinson, the senior inspector at that time. That is the only one that I remember.

1797. What was the good reason for holding that inquiry, do you remember?—I do not remember but it had nothing to do with the coroner, because there is no such official there.

1798. What would be the exceptional case, in your opinion, that would justify putting Section 45 in force?—If after the inquest any facts came out—anything that you could prove as facts—which you could show had not properly been brought forward at the inquest, an so on, I think that would be a reason, if the facts were of sufficient importance.

1799. Will you state to us what is the difference between those two courts, the coroner's court and the court under Section 45: what is the essential difference?—In the one case, of course, you have the verdict of the jury; in the other case you have the verdict of the judge, whoever he is, and his assessor.

1800. And they would be men of experience according to the Act, especially appointed for the work to be done?—The assessor would be a mining man, probably, but the other member of the tribunal would be a judge—probably a County Court judge.

1801. Now, is it not possible and probable that with the same kind of evidence placed before those two courts, the people holding the courts should arrive at a different verdict?—Yes, I think it is quite possible—different men look at different things from a different point of view.

1802. Yes, but I do not wish to put any difference but that of experience and that of knowledge as a mining expert, and so on: that is my point?—In the one inquiry you have the coroner and the inspector of the district: the coroner represents the law, the inspector of the district represents the technical knowledge on the subject. You would have very much the same thing in your other inquiry: you would have a County Court judge and a mining assessor. The result of the inquiry, the verdict of the jury, really does not amount to very much in the eyes of the inspector of the district: he might write quite a different report upon it from what you might be led to believe from the verdict of the jury: he would not be guided so much by the verdict of the jury, because the jury do not look at things in such a serious light.

1803. Taking your answer, if the inspector had been the judge, the probability is that the verdict would be quite a different one?—Yes. Very often, or rather I will not say very often, but frequently I disagree with the verdict of a jury: I do not say so, but I do disagree.

1804. That is a matter which weighs with me, having regard to the necessity of enforcing the 45th Section of the Act; and, if I may say so, we have asked the Home Office twice, I think, for this second inquiry. But I want your opinion now?—Well, if I were the Secretary of State, and you asked me for a second inquiry in a case of that sort, I should say: "What is this request founded upon; where are your facts; have you found

Digitized by Google

Mr. H. Hall. July 1906.

any facts which were not brought out at the first inquiry"; and I should give the matter what consideration I could, and I should have to decide one way or the other. I do not think you could be in much better hands than the hands of the Secretary of State.

1805. I think you told us you would condemn the working in any place where there was any cap at all shown upon the lamp used by the workman?—Any cap in the current.

1806. Especially in the working place?—Passing along the working place.

1807. Supposing in your district in three years consecutively you had made complaint of having found that state of things, that you had sent a report of it to the manager, that you found the same thing occurring morning after morning, that you found on a certain morning that state of things in one district, and an explosion taking place in another; in your opinion would that state of things call for the second inquiry?—All that evidence would be put before the coroner.

1808. Yes, but you are an expert, and the coroner would not be?—But the coroner, at any rate in Lancashire, before he addressed the jury, would ask me to express an opinion.

1809. Then you have a different coroner to what some parts of the country have.

1810. (*Mr. F. L. Davies.*) They cannot be all the same?—If I might venture to say so, I am afraid if you had had this inquiry in your colliery accidents in the way you suggest, instead of the coroner without any jury, you would want then an inquiry where there was a jury. It is always held in England—I do not know what is the opinion in Wales—that a jury is the perfection of tribunal for a question of that sort.

1811. (*Mr. William Abraham.*) But with coroners' juries the chief work is to find out the cause of death, is it not?—Yes, but they go into everything; my experience is that the coroner goes into everything which he may think useful and which may affect the question.

1812. I will put one further case. Supposing in your district you had recommended a certain manager to use safety-lamps instead of naked lights, that you found your recommendation being disregarded, and an explosion occurred from the use of naked lights in that very colliery, and then the coroner's court inquired into the question of accidental death; is that a case in which you think you ought to have another inquiry?—Well, hardly. I think if that had arisen I should have given evidence to that effect (I generally give evidence), so that it would be before the jury and the coroner.

1813. Yes, but supposing that evidence, which was not effective there, were placed before mining experts, is it not possible that it would have a very different effect?—Yes, I think it is quite possible. It is difficult to say which would be the best.

1814. But we want something definite; if we cannot have a definite expression from you we will get what expression of opinion we can?—It is rather difficult to give a definite opinion upon this.

1815. One further question with regard to Boards of Examiners. I think an answer to his Lordship you said that one standard of examination was not desirable?—Quite so.

1816. Why is a standard of examination desirable at all?—Well, there must be a standard.

1817. Is it desirable to have a different standard for different districts?—If I said that one standard was not desirable I meant one standard is desirable, but as many standards as the peculiarities of the different localities called for is better than one. What I mean by that is this. Take mining in Scotland, or mining in South Wales—places a long distance apart—there may be local circumstances which call for a particular type of examination, where it would be desirable that you should not confine them to one particular standard. The standards do not differ very much as it is.

1818. Take South Wales, if you like. I suppose we are all agreed that it would be desirable there to have the highest possible standard of examination for competent managers?—Yes.

1819. Then take the case of a man examined by the Board at Bristol, with regard to which you know the standard of examination is much lower, and which is an entirely different coalfield—is that so?—Yes.

1820. Now take the case of a man who has failed to pass his examination in Cardiff under the higher standard for South Wales; he goes to Bristol to be examined, and gets his certificate; is he a proper man to come to South Wales as manager?—My suggestion would do away with that, South Wales and Monmouthshire would go into one.

1821. I agree; and Scotland?—And Scotland into one.

1822. Then it is desirable for certain districts to have one standard?—Yes, one standard to cover a larger area than it does at present.

1823. Then it follows from that that it is undesirable that a man who has passed a lower standard in one district should be placed in a district where a higher standard is required. Well, that has but one answer.

1824. (*Chairman.*) Perhaps on that point you have not entirely appreciated Mr. Hall's position. I understood Mr. Hall to say that as a result of these examinations a man would be a more desirable person to be appointed as manager for some districts than for others, and I imagine that Mr. Hall would also say that the certificate should state the place of examination. (*To the Witness.*) Ought not the certificate of a mining manager to state where he has been examined, whether he has been examined in Scotland or Bristol, or wherever he comes from?—Yes, I think that would be an improvement.

1825. So that if a man comes to South Wales with a certificate from some other district, he is at a natural disadvantage (although he is eligible) as compared with a man who comes with a certificate from South Wales itself, which has been given to him in the South Wales district?—Yes.

1826. And when he applies, if he produces the certificate, it is known where he obtained it, and the certificate is taken for what it is worth?—Yes.

1827. What I understand you to say is, that a man ought not to be absolutely debarred from being a manager in any district in England if he has passed any one of these six examinations?—No, he ought not to be.

1828. But at the same time, if he produces his examination certificate, and you see where he has got that certificate, you will be able to judge for yourself as to the value of his certificate?—Yes.

1829. You have been asked whether firemen should not have a more sensitive lamp than other people. Is it not a fact that there are very sensitive indicators which may be taken into the mines with lamps, not exactly belonging to the lamp, but which may be separated from the lamp? Do you think it would be desirable that firemen should have those very sensitive indicators for their lamps. I understand there are such very sensitive indicators, are there not?

(*Dr. Haldane.*) Hydrogen or alcohol.

1830. (*Chairman.*) Yes. Do you think it desirable that the fireman should be furnished with such a sensitive indicator, so that he might be able to report the existence of very small quantities of explosive gas?—I do not think there would be any great utility in it. I certainly do not think he should have an instrument of that kind for everyday use. If an instrument of that kind is to be used I think it should be used by the manager on particular and special occasions.

1831. Perhaps there may be some misapprehension as to one of your answers. You said, I think, in answer to Mr. Ellis, that the workmen should have a voice in establishing special rules. What do you mean by "a voice"; do you mean that they should have absolutely some sort of voting power in regard to the establishment of special rules, or do you merely mean that they should be heard in the matter?—I mean that the rules should be put up so that the men could see them, and if they make any objections, and persevere with those objections, so that you cannot get them to withdraw them, they should have the right of arbitration.

1832. With regard to the question as to the verdict of the jury, I do not think you seem to be absolutely permeated with the British notion that a jury is infallible. I think you speak, if I may say so, somewhat slightingly with regard to the verdicts of juries. You say that they do not always look at things in a very serious light, do you not?—No, I did not mean that at all. I think myself that a jury in the long run is about the best court you can have.

Digitized by Google

1833. Then you said that if you were Secretary of State you might, under certain circumstances, suggest the necessity of a further inquiry, or require a further inquiry. Supposing you were a Secretary of State, and were asked to institute a second inquiry, would you not as Secretary of State send to the inspector and ask him whether he was satisfied with the verdict of the jury?—Yes, I should take very much the same steps as the Secretary of State would take supposing he had to give a man a reprieve; he would hear what the judge had to say. Of course, this is a matter which I have nothing whatever to do with, and I would rather say nothing about it

1834. Supposing there was a great difference of opinion, and that the men were very keen on having a second inquiry, and the matter went to the Secretary of State to decide, you think it would be probably a wise course for the Secretary of State to send for the inspector and to ask him what his views were on the verdict. I do not know whether that is the course usually adopted or not; at any rate, do you suggest that that might be a reasonble thing to do?—Yes, if the inspector had not already reported to the Secretary of State on the whole facts. Of course it might not be necessary if the Secretary of State had already had a full report on the inquiry from the inspector.

1835. I should like to know what that report would contain. Would the inspector consider it his duty merely to report as to whether the facts had been fully investigated, or would he consider it his duty further to say whether he agreed or disagreed with the verdict of the jury?—I do not think the inspector would say whether he agreed or disagreed with the verdict of the jury. He would state his own conclusions, and report what he considered was right in the matter.

1836. Therefore, you think that by putting the two things together, the verdict of the jury and the report of the inspector, the Secretary of State would perhaps have sufficient to go upon to enable him to decide as to whether or not a second inquiry was necessary?—Generally, I think he would. There might be exceptions.

1837. I see that in the report on the National Colliery explosion the inspectors say "In our opinion, the verdict was a perfectly correct one"; so that apparently the inspector would sometimes, at all events, express an opinion directly as to whether he agreed with the verdict or not?—Yes, if he agreed with the verdict he would possibly say so, but if he did not agree with the verdict he would probably not say so—he would express his own view on the accident.

1838. (*Mr. Haldane.*) I think you expressed the opinion that haulage roads ought to be watered?—Yes.

1839. Or else treated with a hygroscopic salt of some sort?—Yes.

1840. And that dust should be otherwise prevented as far as possible on haulage roads?—Yes.

1841. You think that there should be legislation to that effect?—I do.

1842. I should like to ask you about the hygroscopic salts. I have never seen this plan tried. Do you know whether it has been tried on a practical scale in mines by the use of calcium chloride, magnesium chloride, or sodium chloride?—I do not know whether calcium chloride has been tried, but of course common salt has been used many years ago. We have been trying some experiments lately in Lancashire with salt; of course we get the salt very cheap there, being near the salt mines, and it was much more effective than I imagined it would be. There was a road in the pit along which the men travelled which was so dusty—I have seen it myself as they walked through it—that as you walked along the dust rose to your knees; they treated 500 or 600 yards of that road with 2½ tons of common salt. It is a travelling road—there is no tram road—so they carried it in buckets and they sowed, the same as a man would do sowing corn. In about three days, without having to remove the dust or do anything else the whole place was, you may say, almost dustless—the dust had become caked except where it was, perhaps, 5 or 6 inches thick, and then if you took off the top cake you could perhaps get up some dust; but where it was, say, an inch or two deep, as it was where the men were walking, the salt made a perfect cure of it.

1843. Was that in the main intake road?—That was in the men's main travelling road where they go to and from their work; it was in the return.

1844. But the air would be damper in the return than in the intake, would it not—the hygroscopic salt would have a better chance?—Yes, we found that to be so. Then we tried a road at a greater depth; the one I was speaking of just now was about 260 yards deep, and we tried a road at about 400 yards deep, and the effect has not been nearly so good; the air was drier, or something of that sort. It must be a month now since that was done We are finding no difficulty with regard to the other one. There must be, I think, some dampness in the air for the salt to be effective.

1845. Yes, the air is apt to be very dry at a main intake road?—More so than in the return.

1846. One further point. Do you know what the composition of this salt was? I suppose it was impure—there might have been a lot of magnesium chloride in it, which would help the hygroscopic properties of the calcium chloride?—It was just the rough, dirty-looking salt from the salt mines.

1847. Did it look damp?—When you sow it it spreads about quite well.

1848. It requires a very small quantity of dust, does it not, to produce an explosion on a road; I mean would a layer of a quarter of an inch thick of dust be, in your opinion, as efficacious of propagating an explosion as a layer 2 inches thick?—Of course that is a difficult question to answer, but my impression is that it does not require what you may call a thick mixture of dust in the air. I found in experimenting that on some occasions when we had the smallest quantities of dust the explosions were the most violent, as if we had almost hit upon the explosive mixture of air and dust, as you may call it. I do not think it would take very much dust to carry on the explosion.

1849. There might be a difficulty, might there not, in regard to using common salt, about getting the salt on the dust at the sides of the road?—Well, where this travelling road had been treated with salt, and it had been effective, I found the dust on the bars was also affected—the damp from the road seemed to have risen up.

1850. With regard to the standard of ventilation which you propose, namely, that a cap should not be visible in any air current, that was your standard, I think?—Yes.

1851. I suppose you recommend that something slightly more definite than that should be made the standard in any question of legal proceedings, because different people vary very much as to what a visible cap is; at least, that has been my experience upon going into different districts?—Yes. I think you would have to take the lamps in use.

1852. But I mean supposing the matter had to be brought into court, I suppose you would recommend some more accurate definition and analysis of the air— you would say that the air should not contain more that 2 per cent. of firedamp, or something of that sort, by analysis?—If it came to a prosecution it would be well to provide yourself with a sample, and to have it analysed.

1853. Or an examination by hydrogen flame, or something of that sort?—No, I would rather have the analysis.

1854. Yes, that would be more convincing. With regard to Ankylostomiasis, I should like to ask you whether you know that any search has been made for Ankylostomiasis in your district, or in any other district in England. Does anybody know that it is absent?—I have spoken to the medical men that I happen to know, on the subject, as to whether they had ever come across any cases which they might describe as such, and I could not find that any of them had.

1855. But you are aware, no doubt, that that is very apt to be the case until the disease is very bad

Digitized by Google

Mr. H. Hall. 25 July 1906.

indeed—it is very apt to be overlooked, and has been overlooked?—Yes, I know it does not affect a man's health specially.

1856. It may affect his health very much, and still be overlooked. It has been so in every part of the world where it has been found, no doubt?—But after your report the medical men in the mining districts were very much interested in the subject; you know that medical men do take an interest in those matters, and I expect they kept a fairly close look-out for any cases among men that came under their notice.

1857. Yes, it cannot be very bad anywhere. I think there are a number of foreign workmen in the coal mines in some parts of Lancashire, are there not?—We have Russian Poles in Lancashire, and we used to have some Italians in the metal mines in North Wales, but I think they have all gone home—I do not think there are any there now.

1858. That was a case in which it was very probable that there might be some ankylostomiasis?—Yes, in the case of those men who came from hot countries.

1859. Are you aware whether any search was made to see if there was any such case in the mines in which those men had been working?—Well, those Italians were not in North Wales in my time, but I have heard that they had very curious diseases, and they looked very odd, some of them; they might have been suspected cases. But really the matter does not appear to have troubled us much yet, and I hope it will continue not to trouble us.

1860. It has been the case, has it not, that where this disease has broken out it has come very gradually—in Belgium, Germany, and France it has taken years to mature?—Yes. I also believe that in those cases there has been more attempt in the mines at what I should call sanitation, and at what you would call sanitation too, previous to the outbreaks; whether that has anything to do with the outbreaks I do not know. I see that Mr. Martin in his evidence said that at the mine that he used to be at as a young man in Germany they had special sanitary arrangements. That is long, long ago. Well, we have never gone in for anything of that sort in our mines. We have depended upon coal dust as being a deodoriser, and I think it is a very effective one.

1861. You suggest that that is one reason why English collieries are freer from this risk, or that that is a possible reason?—Because they have not attempted sanitation.

1862. In Cornwall they had no sanitation, and they had an alarming state of things with regard to ankylostomiasis?—There they get the foreign workmen coming in and returning home, from South Africa, do they not?

1863. Well, they get infected men coming home, no doubt, but not foreigners?—No, their own people coming back.

SIXTH DAY.

Thursday, 26th July 1906.

PRESENT:

Lord Monkswell (*Chairman*).
H. H. S. Cunynghame, Esq., C.B.
Wm. Abraham, Esq., M.P. (Rhondda).
F. L. Davis, Esq.
Enoch Edwards, Esq., M.P.
Thomas Ratcliffe Ellis, Esq.
John Scott Haldane, Esq., F.R.S.

S. W. Harris, Esq. (*Secretary*).

Mr. John Gerrard, called and examined.

Mr. J. Gerrard. 26 July 1906.

1864. (*Chairman.*) I believe you are one of the principal inspector of mines?—Yes.

1865. What is your district?—It is called the Manchester and Ireland District.

1866. No. 6 District?—Yes.

1867. How long have you been in No. 6 District?—Since the 1st January, 1892.

1868. Have you done any inspecting duties elsewhere?—Yes, for eighteen years in Yorkshire.

1869. You were for 18 years in Yorkshire before you went to District No. 6?—Yes.

1870. As assistant inspector or as inspector?—As assistant inspector.

1871. In 1892 you were promoted to be one of the principal inspectors?—Yes.

1872. I think you were present when Mr. Martin gave his evidence. Do you agree with his definition of the duties of inspectors?—I think he covered the subject very well.

1873. There is nothing you wish to add to his statement on that point?—Not as regards duties.

1874. With regard to the size and conditions of the 12 districts into which the United Kingdom is divided, do you think that the division is a good one?—I have never considered the question.

1875. Do you think that the 12 districts are sufficient, or do you think that they are too large?—I do not think my own district is too large.

1876. Do you consider that you and your two assistant inspectors are capable of doing the amount of underground inspections that are desirable—that you and your two assistants are well able to cope with your work?—On the lines as laid down with regard to the duties, I do; but if there is any desire to increase inspection, of course, that is another matter.

1877. What do you say with regard to increased inspection. Do you think it would be desirable, or not?—It is an exceedingly difficult question. It would be absolutely impossible to supervise every part of a mine in the district in the course of a year without considerably increasing the number of inspectors; that can be seen by taking cognisance of the number of officials that are required.

1878. I see that in your district during the last four

Digitized by Google

years there has been no mine which has not been inspected underground?—That is so.

1879. Then may I take it that on the whole you consider the present system of inspection is fairly sufficient?—I can only speak of my own district.

1880. You think it is sufficient for your own district?—Yes; I think the results justify that opinion.

1881. With regard to attending inquests, do you make a point if possible of attending all the inquests yourself, or are you content to depute that duty to one of your assistants?—No, I take it as my own duty, and I only depute the attendance when it is absolutely impossible for me to attend—when inquests clash or when I am away.

1882. It has been stated to us by Mr. Hall that he considered it was more desirable that one of his assistants should take an inquest than he himself in cases where the assistant had happened to be down that mine shortly before the accident and knew more about the circumstances perhaps than he would know?—It may be so on some occasions, but to say that that should be generally observed is going too far, in my opinion. There might be some point of importance to which the inspector had given his special attention, and, he having had a full view of the facts, it would be distinctly an advantage for him to attend, rather than his assistant. I should not lay that down as an absolute rule.

1883. With regard to the preparation of the Annual Statistics, would you rather that the present system was continued—namely, that you are responsible for the preparation of those statistics, or would you rather that the Home Office took over that duty?—I have no wish either way. I have only this to say, that if the collection of statistics be taken over by the Mineral Statistics Branch it should be really taken over—that is to say, if they were to do it nominally, and yet to be constantly referring papers to the inspector and making constant inquiries I do not see that we should be in any better position.

1884. You think that there ought to be no divided jurisdiction in the matter?—I can best illustrate it in connection with the quarry work. All the circulars in connection with the quarry returns are sent out by the Mineral Statistics Branch, and that relieves the inspector of that portion of the work; then when the returns come to the inspector, each individual return must be gone over and forwarded to the Mineral Statistics Branch, in Lancashire 252, in Ireland 537 quarries; then a number of inquiries follow with regard to statistical matters, so that in point of fact one has nearly as much to do in compiling quarry statistics on the present lines as if one had it entirely to do; and if the work of collecting coal mine and metalliferous mine statistics is deputed in the same way, I suggest that the inquiry should be made from the Mineral Statistics Branch, and not sent down to the inspector. I do not know whether I have made myself clear or not.

1885. I think I understand what you mean?—There will not be the relief which may be desirable unless the transfer is large and complete.

1886. Would you like a large and complete transfer, or would you be content to go on as you are?—Personally I am ready to obey whatever may be told to me.

1887. I suppose the object would be to give you more time for underground inspections?—Yes.

1888. As I understand, you do not consider it particularly desirable that there should be more underground inspections; you consider that the number of inspections which you get through, and the amount of inspections which you make, are fairly satisfactory?—I can only speak for myself. I am able to do my work, and if there were more inspections in my district, then you go beyond the lines that have been laid down and considered up to now to be wise as regards inspection.

1889. As regards the lines which have hitherto been laid down and considered wise with respect to inspection, you consider that, notwithstanding that you have to prepare these annual reports and statistics, and notwithstanding that you have to do a certain amount of clerical work, you are able to get through as much underground inspection as has hitherto been considered desirable?—Yes.

1890. Therefore you are not very keen as to having any further assistance in your clerical work. What assistance do you get?—The lines upon which I work are these: I am out all day, and every day, and all my clerical work is done at night, so that the whole of my time is given up to my duties both night and day.

1891. Do you do the whole of your clerical work yourself, or have you assistance?—I have help.

1892. Do you think you have sufficient help?—Yes. I should like to make a remark with regard to the collection of statistics. I suppose one reason why the inspector has it to do, and why it may be desirable for him to do it, is that he is in close touch with the mines, and he knows the conditions, and can readily obtain much information with regard to statistics. If that work were done from London, the coalowners and those who have to supply the information would be worried by communications to a much greater extent than is the case now. That is my point—there must necessarily be an advantage by collecting statistical information from mines on the spot, so to speak.

1893 Then I may take it that, on the whole, you are decidedly in favour of the present system being continued?—I am ready to fall in with any arrangement.

1894. I suppose you are in constant touch with your assistants?—Yes. One is at my house at 8.20 every morning.

1895. Do you mean that one or other of them is there, and that they come by turns?—No, one; he lives within a reasonable distance of me, and he is able to come every morning at 8.20.

1896 What do you say as regards the other assistant-inspector?—I communicate with him by telegram or letter, and we meet as often as is needed.

1897. Do you decide where your assistants shall live?—No. I think I have been consulted; but I should not like it altered. I myself can get to any mine in my Lancashire portion of the district in two hours, and so can either of my assistants.

1898. Ireland is rather a long way off?—Yes, that is another matter; but mining in Ireland is very limited; the output from the coal mines in Ireland last year was only 90,000 tons—not as much as half the output of a pit in Lancashire.

1899. So that both of your assistants in fact live in the Lancashire part of your district?—That is so.

1900. What is your view as to the need for electrical assistance?—Personally, I do not see any need at present. I think the code of Rules laid down gives us the fullest assistance, and it does not require an electrical expert to tell whether there is a bucket of sand in a place to extinguish a fire, or whether there is an india-rubber mat or india-rubber gloves provided, or whether the instruments for detecting leakage are there.

1901. Do you think that the Rules which are laid down are sufficiently intelligible, and that any man of ordinary capacity if he cares to study them ought to be able to take care of himself?—I do. If any electrical question did arise, it being so to speak a new subject, expert assistance could be got. A fatality occurred in my district some two years ago, and I thought it was very desirable that an electric expert should come down and see the conditions under which this electrical installation had been made, and how the accident had occurred. I communicated with the Home Office, and they sent Mr. Ram, the Electrical Inspector of Factories; he came down, and we together investigated, and he attended the inquest and gave some very interesting and valuable evidence. Since then, there has been no occasion for any such visit.

1902. Then I take it you are satisfied with the condition of things as regards the introduction of electricity in mines?—Yes, I think that very good work has been done.

1903. Now we come to General Rule 38, and to inspection by the men. What have you to say on that point?—At only one mine in my district has it ever been done.

1904. Do you remember it being done when you were an assistant inspector in your other district?—Yes.

Digitized by Google

Mr. J. Gerrard.

26 July 1906.

1905. It was done there?—Yes.

1906. Then you have some experience of inspection by the men?—Yes, but it was almost fifteen years ago. I should not care to speak as to what the present conditions in Yorkshire are. I think it is desirable that the inspector for that district should answer for Yorkshire.

1907. Yes, but I asked you simply because if you had no experience of inspection by the men at all it would not be much use putting questions on the subject to you; but as you have come from a district where inspections used to take place, I think it is desirable to ask you a few questions on the matter?—I am ready to answer you.

1908. Do you think that these inspections under Rule 38 do good?—I think it entirely depends upon the nature of the inspection, if it is properly carried out, and by competent men. In case a fire occurred in a mine, it would be a great advantage some of the men knowing the way out by the return air-ways.

1909. What would be the difficulty of properly carrying it out in your district?—I cannot understand why in Lancashire they do not do it, and have hardly ever done it. I have tried to get to know, and it is very difficult to discover the reason. I was told that in the first place they did not see any need for it in Lancashire—I am speaking of both sides, owners and men.

1910. Did they say anything about the expense?—Oh yes, the men have to pay for it.

1911. Do you think that is a good system, that the men should have to pay?—It increases the value and the weight of it. Of course, on the Continent the owners pay for the workmen's inspection, but I fancy the men would prefer to pay where they wish to do it.

1912. Then you think they would feel that if the owners paid, the inspection might not be carried on in so impartial a spirit?—It is open to that view.

1913. They might take that view?—Yes, and that is one of the criticisms that I should attach to my former experience; that if a manager of a mine had a special reason for desiring his mine to be examined, if he could influence the men selected to examine that mine the report would be of less value than if the inspection were absolutely independent.

1914. Did you find that the men laid much stress upon it in Yorkshire?—It was very partially done.

1915. When you came to your new district you tried to induce them to do it and failed?—I spoke of it many times, and inquired what was being done, and why nothing was being done in that direction at that time. I ought to say that when I first went to Yorkshire, in the seventies, several very serious and large explosions occurred in the Barnsley mines, and the use of lamps, and the use of explosives, and furnace ventilation were very important questions, and also the question of the ventilation of the mines. After a disaster such as the one at the Swaithe mine, when about 150 lives were lost, and after the Oaks Colliery explosions, when 360 lives were lost, every consideration was given to the question of how the great disasters could be prevented, and it was owing to that desire on the part of all, both owners and men, to prevent these disasters, that the inspection by workmen in Yorkshire largely increased. We had not even a case of ignition of fire-damp last year.

1916. There has been no ignition whatever there last year?—No one hurt by fire-damp.

1917. You have had no deaths from explosions since 1901, but you had three separate explosions, and six injured in 1904?—Two ignitions were caused by bobbinite explosive.

1918. With regard to the question of discipline in the mines, and supervision by the owners, how far do you think it desirable that the discipline should be enforced by prosecution, and how far by fine?—I have hitherto strongly held that discipline should be maintained by prosecution, and my grounds for that view are that if the power to inflict fines was arbitrarily used it might result in very serious injustice to the men, and that by taking the delinquent before the magistrates he has a chance of being heard in his defence, and the imposition of any penalty is a judicial one. But I am bound to say that it is very difficult to sustain that invariably, and on the part of the men they largely prefer to be fined. If they are summoned they lose their day's work, and they have the extremely unpleasant duty of attending a police court, and if they are defended, and have to instruct a solicitor, the whole cost is increased. I know of many cases where men have begged to be fined rather than to be prosecuted. In connection with some of the largest mines I have brought here particulars of the results this year of fining, which vary very much indeed. With regard to the cases in which the men are fined, if it is of interest, I could put those tables in; there are no names appearing on the tables, but I have lettered them so that I have a reference to where the collieries are, and the Commissioners can see what is the extent of fining. I have the date, occupation, amount of fine, and the offence.

1919. (*Mr. Ratcliffe Ellis.*) Is that fining by the magistrates?—No, fining by the mine management.

1920. (*Chairman.*) Have you totalled up the number of fines?—No, but that is easily done from the lists.

1921. I think there certainly must be some hundred of fines in this list. You think that in many of those cases discipline ought to be maintained by prosecution?—I should say very likely yes. There is much to be said for it, but the difficulty is as to how much elasticity should be given. If it is said arbitrarily that no persons shall be dealt with under the head of discipline other than by prosecution, I think the men would have much to say upon it.

1922. You speak about the arbitrary use of fines; you know that under the Truck Act fines must be fair and reasonable, and the terms of the contract under which men submit to fines must be written up so that much elasticity should be given. If it is said arbitrary?—Well, managers are not all alike, and if there were other reasons for coming down upon a man than his offence itself *per se*, it gives an opportunity to the manager to show feeling.

1923. But surely under the Truck Act the contract specifies the act or omission in respect of which the fine may be imposed, does it not?—I understand as regards that that the maximum fine under the Truck Act is very seldom inflicted?—I think the list which I have put in will show.

(*Mr. Cunynghame.*) The fines vary; that is what the witness complains of.

1924. (*Chairman.*) Yes, I understand. So that if a manager has reason to be down upon a man because he has done something outside the offence for which he is fined, and which the manager does not approve of, he, the manager, can fine the man 10s. instead of 2s. 6d., perhaps?—Yes.

1925. That is what you call arbitrary?—Here is a notice which is posted up at one of the largest mines in my district: "Part 1, Truck Acts, 1831 to 1897. As hitherto, in cases of disobedience to orders, or contravention of any of the General, Special, or other Rules in force at this Pit, it shall be within the judgment of the Manager to enforce the proper carrying on of the work by inflicting a fine not exceeding 40s. for each offence; but this is not intended to substitute fines in the place of prosecutions where in his judgment such are necessary." I have put in lists for one of the largest mines, and the highest fine inflicted (you will find it in list A.) is 5s. for "Pricking lamp gauze with pick"—damaging lamp gauze. Then "5s. sending out lamp without rivet"; that is by the lampman—a very serious offence. "Lampman sending lamp out without lock, 5s." I only want to show that there is nothing like a 40s. fine inflicted.

(*Chairman.*) I should have thought it might be a question as to whether it was a reasonable thing to enable mine managers to inflict a fine of 40s. for any offence against any Rules, which apparently is the effect of these notices.

(*Mr. Cunynghame.*) There is a question whether that is legal.

(*Chairman.*) So I should have thought.

(*Mr. Cunynghame.*) Of course, it gives a man unlimited power of fining to the extent of 40s. for any offence, but on the other hand it is very difficult to say that the fine should be only 1s., because a man might take matches down a pit, which would be a great danger to all, and the men themselves would desire to see a man seriously fined for such a thing as that.

(*Mr. Ratcliffe Ellis.*) The only point is whether, if you put up a notice of that sort and the man continues

Digitized by Google

to work, that constitutes an agreement. The Truck Act contemplates apparently the agreement being made before the notice.

(*Chairman.*) The contract is contained in the notice kept constantly fixed up.

(*Mr. Ratcliffe Ellis.*) That is one way of doing it. The other way in which it is done in Lancashire is that the men agree on each occasion to pay the fine.

(*Chairman.*) Yes, that is so—independently of any contract; a man has to sign an agreement to pay a fine.

(*Mr. Ratcliffe Ellis.*) I should think that in the great majority, if not in all, of these cases, there is a slip of paper saying that the man has agreed to pay the fine which is imposed upon him.

(*Mr. Wm. Abraham.*) Does this not nullify the provisions of the Mines Act?

(*Mr. Ratcliffe Ellis.*) It does not, for this reason: the Truck Act does not make fines legal which were not legal before, but it says that a fine shall not be legal unless there are certain formalities gone through. One is that the contract under which the fine is payable, made between the workman and the owner, is advertised; the second alternative is that there is an agreement in writing for that particular fine made at the time; the third is that it must be reasonable and proper—you do not escape the consequences of the Truck Act by either one or the other if it is an unreasonable amount; and lastly, when the wages are paid there must be put upon the pay-ticket the particulars of the deduction, and a statement what it is for.

1926. (*Mr. Wm. Abraham.*) Can you tell me the amount of the fine which was imposed upon this lamp-man?—I have handed in all the particulars.

(*Mr. Wm. Abraham.*) I think we must take part in this if we are going to discuss the matter. It is a case of the lamp-man going out with lamp unlocked, and the management fining him instead of taking him before the magistrate. What becomes of the discipline and safety in a mine which goes on like that?

(*Mr. Ratcliffe Ellis.*) We can see, with regard to this colliery, what was the effect upon the workmen or anyone else from the statistics.

(*Mr. Wm. Abraham.*) Yes, that is the effect of amending the Truck Act in 1896.

(*Chairman.*) It seems to me that under Sub-section (d) of Section 1 of the Truck Act, which says that the amount of the fine must be fair and reasonable, having regard to all the circumstances of the case, it might very well be held that a 40s. fine for a small offence was unreasonable, even although the contract might say that you might fine up to 40s.

(*Mr. Ratcliffe Ellis.*) That is so; it is entirely independent of the contract. If it is an unreasonable fine it is contrary to the Truck Act.

(*Chairman.*) Even although it may be within the terms of the contract.

(*Mr. Ratcliffe Ellis.*) That is so; and if that is the case the employer is liable to be prosecuted under the Truck Act, and it is part of the inspector's duty to see that the Truck Act is carried out.

1927. (*Chairman.*) Supposing you found the man was fined the maximum amount of 40s. for what appeared to be a trifling offence, would you consider it your duty to call the attention of the Home Office to it?—Certainly.

1928. Have you done so in any case?—No. To my mind the object of stating in that notice that the maximum amount may be 40s. is to provide the fullest amount. In regard to that particular mine I have put in the whole of the fines inflicted for that year at one of their largest pits, and the maximum fine inflicted is 10s. in one case—collier not spragging; then in all the other cases the amounts are 5s., 2s. 6d., 1s., and so on.

(*Mr. Ratcliffe Ellis.*) In this list there are only two cases of a fine amounting to 10s.; the others are all limited to 5s. One of those cases in which the fine was 10s. is for the engineer for being drunk on duty, and the other is for a collier not properly spragging. I think in the Truck Act there is a requirement that a register of the fines must be kept.

(*Mr. Wm. Abraham.*) If they carried on 10 registers that would not mitigate it.

1929. (*Mr. Ratcliffe Ellis.*) There is a register kept?—Yes; there ought to be, and there is, so far as I know. *Mr. J. Gerrard.* 26 July 1906.

1930. So that you would have an opportunity of seeing each time that you went to the pit a register showing what fines had been inflicted, and in respect of what offences?—Yes. That is how I have been able to get these lists.

1931. (*Chairman.*) Your point is with regard to the more serious offences—the offences which might very probably cause loss of life; you consider that men should not be fined, but should be prosecuted in those cases?—Certainly. ✓

1932. In all those cases?—Yes. I do not know the details or the particulars; there is only that one case of a lamp-man being fined 5s. for sending out lamp without rivet. I do not know where it was detected—whether it was immediately outside the lamp-house or not; I do not know what were the circumstances, but I agree with Mr. Abraham that that is a class of offence which had better be dealt with by prosecution as an example to the whole district.

1933. You have the power of looking over those registers of fines, I understand. Would you not consider it your duty, in a case like that, to go to the mine manager, and suggest that he ought to have prosecuted the man?—Certainly. This occurred on the 17th January, and it was only in connection with this inquiry that I ascertained it.

(*Mr. Wm. Abraham.*) That is what I was going to ask. How did you know what was being done between the manager and the man? You would not know probably for a twelvemonth.

(*Mr. Ratcliffe Ellis.*) He would know whenever he went to the colliery, or his assistant would know; the register is there.

1934. (*Chairman.*) Have you considered it part of your duty to look over these registers, and discover the amounts of the fines, and what they were for?—Not regularly. It is not until recently that I have considered it of importance.

1935. But now you do consider it of importance?—Certainly. ✓

1936. And for the future you will look over those registers from time to time?—Yes.

1937. And where you think that prosecutions ought to have been undertaken you will remonstrate with the manager, and say that, in your opinion, he ought to have prosecuted?—I should first ascertain the circumstances.

1938. Of course; but, having ascertained the circumstances, if you come to the conclusion that a prosecution ought to have been undertaken, you will tell the mine manager so?—Yes. If it be thought desirable it would be a very simple thing to require a return to be sent to the inspector, and then he would have an opportunity of knowing. To leave it to be found out by actual visit would be rather uncertain.

1939. Do you think it would be a desirable thing that a copy of the registers of fines should be sent to you from time to time from all the mines in your district, so that you might look them over?—I think there is much to be said for it. It is a very difficult question. If you draw the line absolutely that all offences must be taken before the magistrates, I am absolutely sure that there would be a big outcry in my district about it.

1940. And also there would be a good deal of expense and a good deal of loss of time occasioned by all those prosecutions?—Oh, you have no idea of the difficulties that these people have. They must in the first instance go to lay an information, and a mine manager would lose the greater part of a day in going to the magistrates' clerk to lay the information. Then he has to go before the solicitor, and has to go through all his evidence with all his witnesses. Then he has to go to the court, and wait under very unpleasant conditions with regard to clearing the dock of all the disorderly cases, and so on, and practically there is another day spent over the hearing.

1941. (*Mr. Ratcliffe Ellis.*) And probably another day waiting until the magistrates attend to try the case?—Yes, it may be so. There are difficulties connected with laying down a hard-and-fast line to deal with

Digitized by Google

Mr. J. Gerrard.

26 July 1900.

all offences, either want of discipline or breaches of Regulations, Rules, or Orders, by prosecution.

1942. (*Chairman.*) Then I take it that you go so far as this—that in all cases of offences which might probably cause loss of life if persisted in, you would be in favour of compulsory prosecution?—Yes.

1943. Do you know anything about what we have heard of, namely, that the Miners' Union pay for the defence of men prosecuted for breaches of Rules?—We have excellent miners' agents in the district. I get on very well with them. I think I have their full confidence, and they give me every help, and I try to give them every help.

1944. Then you have no complaints to make against the Miners' Union?—Not in the least.

1945. How far do you consider the inspection by officials of the mine is adequate (General Rule 4)?—The practice at all the large and important mines is to inspect before each shift the places in which the men are going to work. The time is fixed by Special Rule—"In no case exceeding three hours."

1946. That is your Special Rule?—Special Rule No. 28: "The fireman appointed to carry out the inspection required by General Rule 4 shall make an examination at such intervals as the manager of each mine may fix, in no case exceeding three hours, immediately before the commencement of each shift." It is not to exceed three hours, and in many cases the limit is not more than two hours. Following on, at all our best-regulated mines two examinations are made whilst the men are at work. I think I am bound to say that I have an uncommonly good district with regard to all the parties—the owners, the managers, and the workers; and the record of the low death rate last year, I think, is full proof of that. The only criticism which I have to make with regard to General Rule 4 is that it is not at all clear with regard to reporting—it is mixed and confusing. I cannot understand why a report should not be made of every examination. The words are: "But it shall not be necessary to record a report of the same in a book." As a matter of fact, at all the best mines the managers, wishing to know what the condition of the mine is, insist upon a report.

1947. (*Mr. F. L. Davis.*) That is for any inspection after the first inspection?—Yes, whilst the men are at work. It is Part 2 of General Rule 4: "A similar inspection shall be made in the course of each shift, of all parts of the mine in which workmen are to work or pass during that shift, but it shall not be necessary to record a report of the same in a book." If any amendment of the Mines Regulation Act were to be made, I should suggest that that ought to be made much clearer.

1948. (*Chairman.*) Then you consider that in every case where an inspection is made the result of it should be reported?—Yes.

1949. Do you think that the districts assigned to mine officials are too large?—I should be glad to know where there is such a district. I am constantly discussing with the managers the size of the officials', the firemen's, districts, and reviewing and endeavouring to have a reasonable district. It is a most important matter.

1950. You consider that they are very reasonable, and that they meet you very reasonably?—Yes, in my district that is so.

1951. Then, with regard to bringing home to the owner responsibility for the working of his mine, I suppose you have looked at some of these legal decisions as to how far the appointment of a certificated manager will relieve the owner of responsibility?—I think it is essential that responsibility should attach to the owner. I think it would be absurd for the owner to take off all the responsibility, as he would take off his gloves, by the appointment of a manager.

1952. I suppose you have had your attention called to Section 50 of the Coal Mines Regulation Act, which provides: "Every person who contravenes or who does not comply with any of the General Rules in this Act shall be guilty of an offence against this Act; and in the event of any contravention or of non-compliance with any of the said General Rules in the case of any mine to which this Act applies, by any person whomsoever, the owner, agent, and manager shall each be guilty of an offence against this Act unless he proves that he has taken all reasonable means by publishing, and to the best of his power enforcing, the said Rules as regulations for the working of the mine, to prevent such contravention or non-compliance." Do you think that section is sufficiently stringent?—I do.

1953. You do not see your way to improve it or to amend it in any way?—It is the interpretation that is put upon those words by the powers that varies. Personally I am satisfied with that wording.

1954. But, as different interpretations have apparently been put upon those words, perhaps it might be desirable that some other words should be chosen. However, so far as you are concerned, you are satisfied with that provision?—Yes. The only observation that I would make is with reference to the appointment of an agent under the Act. Section 75, as to the interpretation of terms, says: "'Agent,' when used in relation to any mine, means any person appointed as the representative of the owner in respect of any mine or of any part thereof, and, as such, superior to a manager appointed in pursuance of this Act." The only difficulty that I have had with reference to responsibility has been under the head of "agent." Under the Act an agent may be appointed by the owner of a mine, and he can appoint anyone; he can appoint a clerk in the office to be in that position of advantage, superior to the manager. He is not required to give notice of the appointment to the inspector. In practice it works in this way: an excellent manager might be appointed in charge of the mine, fully competent and fully desirous of carrying out the duties, but a person intervenes between him and the owner who may give directions with regard to various matters, and the manager would be compelled to carry out those directions. What responsibility attaches? I mean it is not altogether as clear as I should like it to be with reference to the appointment of agent. Anyone exercising supervision ought to be held responsible.

1955. Do you think that a mineowner should be prohibited from appointing anybody but a duly qualified or certificated person?—There seems much to be said for that; it seems to be a very wide power that he should appoint anybody to act as superior to the manager.

1956. Have you known incompetent agents appointed, or, at all events, agents not very well qualified?—I have. By way of example, a commercial man, who does not risk his life at all, who never goes on to a rope, directs the purchase of winding-ropes—I do not say considering only the question of price; but surely the manager, who risks his life, and has a great responsibility, should have the controlling voice with regard to the important matter of selecting such a thing as a winding-rope.

1957. I should have thought under those circumstances the manager would have thrown up his situation?—Well, the situations are not very easy to get.

1958. (*Mr. Ratcliffe Ellis.*) There is no obligation to appoint an agent?—No.

1959. (*Chairman.*) The point is that if an agent is appointed, any person, whether he knows anything about mining or not, may be appointed as an agent, and that when he is agent he is by the Act of Parliament placed in a position of authority over the manager of the mine, and he may give the manager of the mine orders, even although the manager of the mine may be the competent person, and he, the agent, may be the incompetent person?—If there is any weakness, so far as my experience goes it is with regard to agency.

1960-1. (*Mr. Ratcliffe Ellis.*) First of all, there is a question whether a person of that kind would accept office, and take the responsibility over the manager in respect of matters for which he might be sent to prison; and next it is a question whether a manager would work under such an agent?

(*Chairman.*) Perhaps he would not, but the fact remains that under this Act of Parliament such a state of things might legally exist, because the Act of Parliament says that any person may be appointed; it does not provide any qualification for an agent, and when an agent is appointed he may have authority over the manager.

(*Mr. Ratcliffe Ellis.*) It is a question of the construction of that definition, my Lord "and, as such, superior to a manager."

Digitized by Google

(*Chairman.*) "'Agent,' when used in relation to any mine, means any person appointed as the representative of the owner in respect of any mine or of any part thereof, and, as such, superior to a manager appointed in pursuance of this Act." That, I suppose, would mean that he is the superior officer of the manager, and has to give him orders.

(*Mr. Ratcliffe Ellis.*) How far he would be entitled to give instructions to the manager with regard to the management of the mine would be a question. I think it requires a better definition than that.

1962. (*Chairman.*) At all events, your view is that there should be some sort of qualification laid down for an agent. Is that so?—Yes, there is a weakness in the present Act with regard to agency. Qualification should be required, and responsibility should rest upon those exercising agency.

1963. Have you anything else to say on that head?—I think not.

1964. Now we come to the question of accidents. I understand that with regard to explosions there have been no fatal explosions in your district since 1901, and only two explosions since then, which were not fatal?—Yes.

1965. To what do you attribute this immunity from explosions in your mines?—First to the ventilation, and the well-carrying out of the first General Rule; if there is any branch of mining in which there has been improvement, in my experience, it is in that of ventilation of mines; it is more and more recognised that, apart from the danger of firedamp, and preventing firedamp accumulating, more work and better work is done if the working places are well ventilated.

1966. Then what other causes of immunity are there?—With regard to the use of safety lamps. I do not know a mine in my district where there is any need to introduce safety lamps: safety lamps are almost entirely used. There are only a few day holes, very small places in shallow mines where candles are used.

1967. Then you have nothing to say as regards Rule 8 with respect to the use of safety lamps, or do you think that could be improved upon?—I have a few words to say upon that. I do think that it would be a great advantage to have the type of safety lamp tested. At present the only protection is that of satisfying the manager that the lamp is equal to the current—putting it shortly, I think those are the words. Of course the remedy may be said to be to wait for a disaster to prove the failure; I should prefer that it should be known beforehand. Recently my attention has been drawn to the introduction of lamps without any test that I know of; lamps have not been subjected to any test, and yet in construction they are deficient. This would illustrate it (*producing lamp*). This is called the Clanny lamp, and this lamp caused an explosion at the Shakerley Colliery in 1895, when there were five lives lost. This lamp caused the explosion, it fired the gas, and this is the gauze taken from it (*producing gauze*). *This* is a gauze (*producing another gauze*) which is being introduced largely, and I have myself considered it, and if safety be due to the gauze—if that is the basis—then by increasing the diameter of the gauze, and by increasing the area of the gauze, to my mind the lamp is made less safe. This illustrates my point with regard to the need for testing lamps before they are introduced into a mine. I do not advise the testing of every lamp that is used in a mine, or the testing of every lamp every day, but of the type of lamp. I suggest that a new lamp should not be introduced until it has been proved to be a reasonably safe lamp. I think this lamp which I produce best illustrates my point. I have submitted these two gauzes to a number of eminent mining men, and they agree with me that *this* gauze is less safe than *that* one, which caused the explosion.

1968. (*Dr. Haldane.*) May I ask what was wrong with the lamp? Was it discovered what the defect was which led to the explosion?—The mistake was that they permitted it to remain in firedamp, and it is a single-gauze lamp.

1969. (*Mr. F. L. Davis.*) Too long?

(*Dr. Haldane.*) Until it got red-hot?—It ought to have been withdrawn. They were removing firedamp from places, which is frequently done in mining where firedamp accumulates in a place. The people who were using it were the officials,—I believe the manager, the under-manager, and a fireman and two other helpers were in this part of the mine to remove the firedamp. They put this lamp behind them, and they went forward beyond the lamp, and one man was some yards in the firedamp—their bodies were found afterwards, proving where they were, and the lamp was picked up. This was the only light that could have caused that explosion—the light in this lamp. I had it brought away, and I have had it since. Of course, they risked losing life in going into the gas, and they agitated or disturbed the firedamp and brought it on to the lamp, having raised up dust. Those are conditions which it is very difficult to reproduce in testing, velocity of current, low; proportion of firedamp, dust, etc. We have two private lamp-testing stations, one of them belonging to the Wigan Coal and Iron Company, and I took this lamp to that lamp-testing station and had it tried, but I could not reproduce the conditions.

1970. (*Mr. F. L. Davis.*) You do not know what the conditions were—what the quantity of firedamp was?—Well, supposing certain conditions, I could not reproduce them. I subjected it to firedamp tests; but a little dust thrown on would be the last straw.

1971. (*Chairman.*) I do not think there is any difference of opinion with regard to the possibility of setting up a system of testing safety lamps, and that lamps not passing the test should be prohibited. I fancy everybody is agreed on that matter, and I do not know that you need pursue the point much further?—I wish to put that forward very strongly.

1972. (*Dr. Haldane.*) That lamp was a single gauze lamp?—Yes, it is a single gauze lamp. The largest number, of course, are lamps with two gauzes. That kind of lamp has gone through some very trying ordeals. In my Report of last year I deal with the matter pretty fully for the purpose of illustrating this point. You will find that the number of Marsaut or two-gauze lamps in the district is 17,920, and the number of Marsaut deflected two-gauze lamps, 10,638; that is to say, 28,000 double-gauze lamps in use as against 5,000 of these single-gauze lamps.

(*Chairman.*) It is understood, I think, that a system of testing safety lamps should be established.

(*Mr. Cunynghame.*) We shall be prepared to test them.

(*Mr. F. L. Davis.*) Yes, at one official testing-place.

(*Mr. Cunynghame.*) We should test lamps in the same way as we test explosives. We should be quite prepared for your Lordship and the Commission to recommend that we should test the types.

1973. (*Chairman.*) That would meet your wishes?—Yes.

1974. With regard to ventilation, you have mentioned ventilation as another reason why explosions have become so rare in your district. What do you say about the adequacy of the first General Rule?—I have had very little difficulty indeed. I have had some very tough fights before magistrates with regard to proving inadequacy of ventilation. I think one of the Commissioners (*Mr. Ellis*) and I have been in more than one fight with regard to that. I think I have only failed about once. It is absolutely certain in my mind there would be a gain to all parties if clear words requiring freedom from indication of gas were inserted, saying that when gas shows on the lamp used in the mine, work should cease.

1975-6. You mean a cap?—Yes, that is the best test. It is extremely difficult to deal with any other standard; any other standard would be open to failure. To try and say that there should be so much air for every mine is difficult; the conditions vary; in a newly-opened-out mine in a virgin district at the first prick of it the quantity of gas given off is altogether different from the amount in a well-exposed and well-drained area, and the amount of gas given off in a virgin field, in a virgin district, would require a very large amount of air. To attempt to fix a standard by quantity of air would utterly fail.

1977-8. Then, on the other hand, the different kinds of fuel used in the lamp will make a difference as to whether it shows a cap or not?—There has been no difficulty in my district. I frequently test for gas with colzaline, benzoline, and paraffin lamps. The

Digitized by Google

Mr. J. Gerrard.

26 July 1906.

blue halo which shows when the light is reduced, even in fresh air, air free from firedamp, is quite different to the cap, which shows when firedamp is present. This latter enlargement of the flame is in the form of an upward elongation. The men call it "spiring." We have 12,625 safety lamps in use, burning colzaline, benzoline, paraffin, and spirit.

1979. No, but the difficulty is this, that one day you may have a lamp with one kind of fuel, and no cap will appear, and the next day, under precisely the same conditions, a cap will appear if you take a different lamp down the mine?—Of course that point has to be considered; with a very low and a very small flame you get a blue halo from the spirit, but if gas be present you have the sure indication of the enlargement—I think Dr. Haldane will follow me—the enlargement of the flame would be an indication of the presence of firedamp. When these spirit lamps were first introduced (they were first introduced in Yorkshire, I think about 1878), there was a great outcry, and I remember getting a telegram asking me to go to a colliery where the men had struck work against the introduction of these spirit lamps. That was Church Lane Colliery, Dodworth. I went there, and met either Mr. Benjamin Pickard or Mr. Frith at the colliery, and Mr. John Higson, the Mining Engineer, and the manager of the mine. We all discussed the subject together, and the men went to work the next day; after they got accustomed to the lamps there was no difficulty at all about it.

1980. You say there ought to be in the first General Rule something to the effect that the ventilation should be such that no cap shall be shown in the air-current?—Yes, and I have no difficulty with regard to the lamp if the words are put in—"the lamp used in the mine" would meet my requirement.

1981. You have not said anything about watering? Is watering practised in your district?—Coal-dust is a very serious and difficult question, and it has given me considerable anxiety. The owners are moving, and I think in justice to them I ought to explain that they have had difficulties. I could mention colliery after colliery which introduced, at considerable expense, fixed sprays, and they have absolutely failed—that is to say, pipes taken down the mine, and at certain points water permitted to escape through a fine rose in the form of a spray; very shortly the holes get blocked, and they require reopening. At one mine a fitter was fully engaged in attending to those sprays. They persisted in the experiments for several years. At that same mine they have now introduced water-pipes along the main roads, with, at fixed intervals, a pipe permitting a hose to be attached to turn on the spray, and to direct a spray over the roof and sides; and they are satisfied that much can be done in that way. They have also introduced a water-wagon by which water is distributed. This wagon would be put into the set of trains along the haulage road, and the water would be distributed by spray travelling along. I think that is doing good work. Another idea is to have at the commencement in-bye of the haulage road a fixed water arrangement, so that the top of the coal in the wagons shall be well watered to prevent dust going from the wagon. At one large mine they have 7,166 iron wagons in use; these prevent the shaking out of dust on to the haulage roads, and they tell me that the cost of those iron wagons is a little more than the cost of wood wagons, but that they gain in the annual repairs. The cost of wooden tubs of the same size is £2, and the cost of the iron tubs £2 7s. 6d., so that on the one hand by the iron tubs there is no shaking from the bottom and sides of the wagon, and that is obtained at an extra cost of 7s. 6d. per wagon. The difference between the cost of annual repairs is this—on the iron tub they cost 3s. 9d., and the cost of repairing wooden tubs is put in at 5s. 7d.

1982. (*Mr. F. L. Davis.*) Are those closed at the bottom and sides?—Yes.

1983. Of course open at the top?—Open at the top

1984. (*Chairman.*) Would you make it compulsory that iron wagons should be used?—My experience of 40 years tells me that first you have a movement in a certain direction—a number of intelligent coalowners make an advance, and they lead the way to legislation; they put into operation practices and appliances, and so on, to prevent loss of life, and then legislation follows to compel all the others to come into line. Whether the time is ripe for legislation with regard to watering is the question before us. It is being very seriously considered, and if the time is not ripe, it is almost ripe. Inspectors of mines have been very freely criticised for not being able to draft a rule or regulation to meet this point, but inspectors of mines are in such close touch with the different conditions prevailing in mines that they see how difficult it is.

1985. Are your mines watered or not?—They are not.

1986. Are they dry and dusty?—They are dry and dusty.

1987. How many of your mines are dry and dusty?—That classification is a little complicated. I am constantly considering this subject, and I think I can show you in a moment one of the difficulties. I have spoken about the testing of safety lamps, and possibly if we had some further tests with regard to coaldust it might help. I have here a number of bottles containing samples of dust, from which will be seen the difference in colour. These two contain very fine dust collected from near the roof roadways in two mines; one is pure coal-dust, black in colour, the other largely composed of stone-dust, grey in colour.

1988. From the same mine?—No; totally different mines. Your Lordship will see this is black, and you see how impalpable and fine it is; then I point out to you the colour of *this* dust.

1989. It is not quite as fine, is it?—I think it is as fine, but there is the difference in colour.

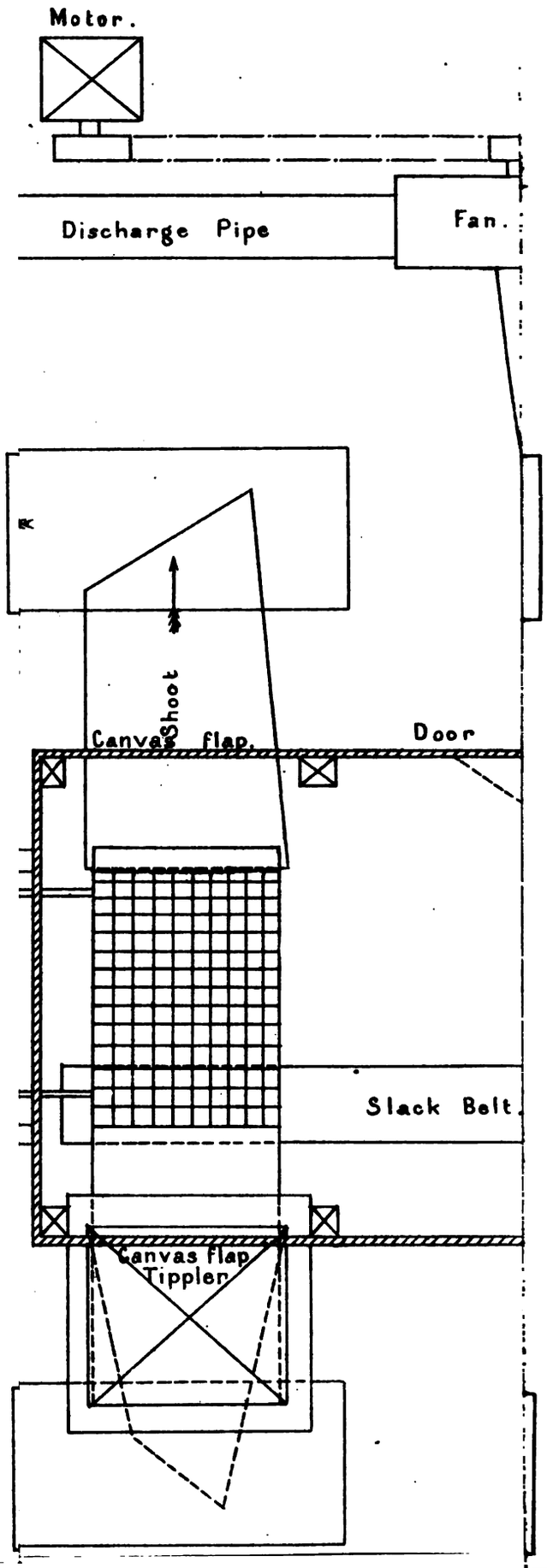
1990. One is black and the other is grey?—Yes. *This* is largely composed of stone-dust. I myself do not think that is dangerous, but I think it is very desirable that the question should be fully proved, and that there should be no room for doubt. Indeed, it has been advanced that the introduction of stone dust into the coal-dust might reduce the danger, but I should like to say a few words to show how very serious this coal-dust question is. Within the last few days, in order to know what the present conditions are, I have visited some of the dustiest mines in my district, accompanied by the managers, and I have seen what a great quantity of dust there is. There is a large amount of dust which goes down the downcast shaft from the screens, not at one mine, but at several, where no coal is raised from the seams. Say there is a seam at 750 yards from the surface, and at the bottom of that shaft no coal raised from that seam, but coal raised from the seam 500 yards deep— 250 yards above that; the amount of dust at the depth of 750 yards is most striking. Every fortnight it has to be taken out, and many wagons are filled up with dust; that is this pure, fine, black coal-dust taken into the mine from the surface, the screens, the wagons, and the cages. The first step, of course, would be to prevent that dust going down the shaft. I was at a mine yesterday where they were trying it. They have got the screens covered over at the top, and they have covered them over underneath, with a chamber boxed in, and connected with a tube 2 ft. in diameter to a small fan. They draw from this tipping chamber the dust into another chamber, and it is collected every week, and from about 470 tons per day I think they get a ton of this dust every week collected in this chamber—that is to say, a ton of this fine, impalpable powder is taken from this chamber.

1991. (*Mr. F. L. Davis.*) Is the side of the screen nearest the pit open? There must be one end open surely, must there not? I do not quite understand how they can confine it—I mean the trams run from the top of the pit to the screen, do they not?—Yes, a few yards from the shaft.

1992. That is how it is opened?—Yes; where the wagon goes is open. Then there is sheet iron over the top of the tippler, boxed over the top, so that there is only the end of the wagon to go in. Then there is very little that can come out that way—the end of the wagon holds it in. The coal is turned over and emptied into the tippler, then it goes on to the shaking screen to classify the coal, and the whole of that is enclosed in the chamber 27 ft. by 12 ft., and from that chamber a pipe 27 in. in diameter goes to a fan; that pipe is 15 ft. long. This small sirocco fan draws it into the dust-chamber 12 by 10, and 15 ft. high. On opening this door to peep in, a volume of dust came out into my face, proving what I am pointing out. Then they have a small pipe *here* exhausing

Digitized by Google

Digitized by Google



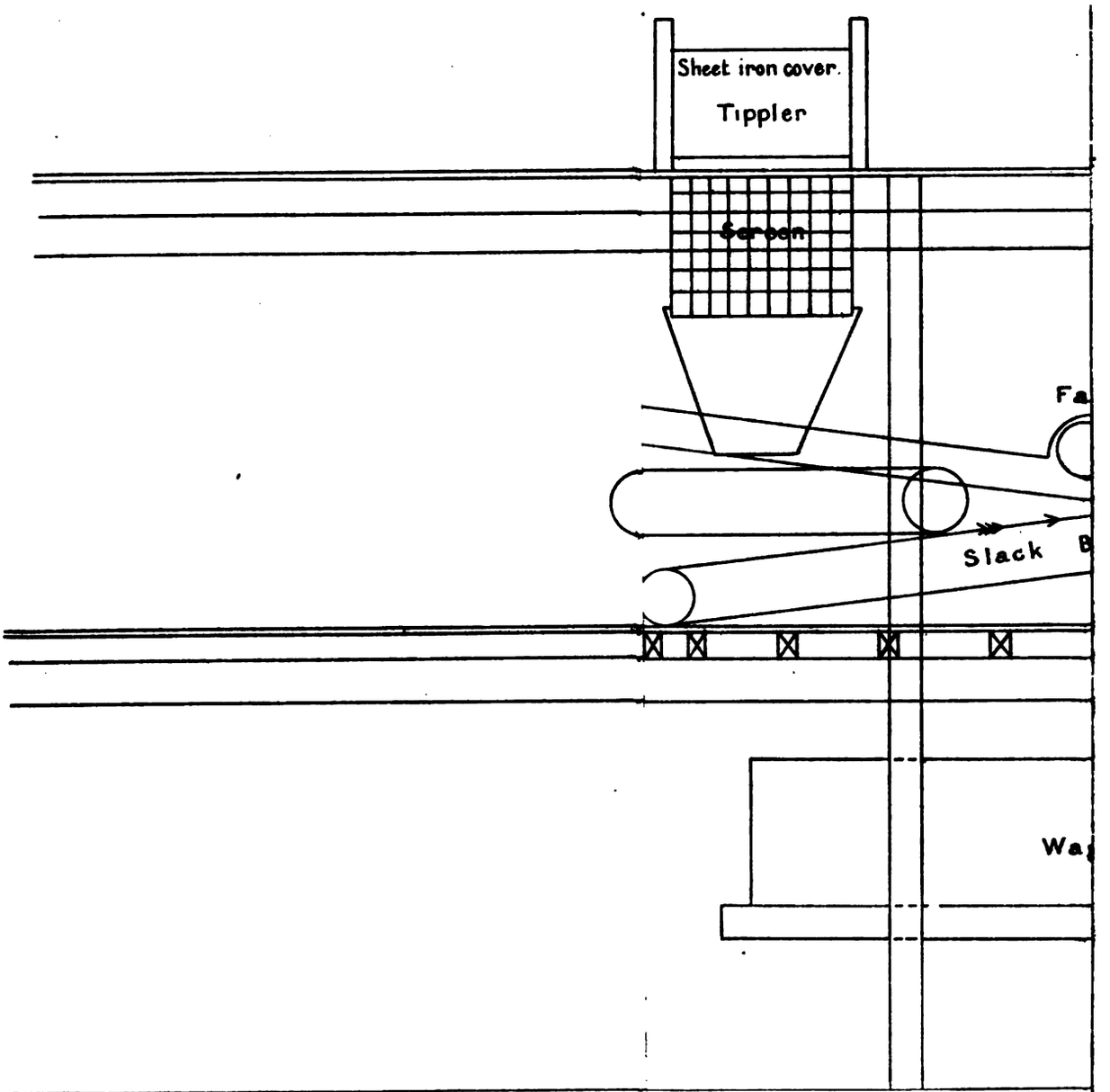
Digitized by Google

Digitized by Google

PLAT

RANGEMENT FOR CO

Scale 1/4 in



E

601.9.08.

Digitized by Google

steam, which causes it to settle to the bottom; and although it had only been in use three days yesterday—Monday, Tuesday, and Wednesday—there was more than an inch thick of dust all over the bottom, and by Saturday it will be 2 in. thick, and a ton of dust is taken out from there. (*Witness produced drawing.*)*

1993. (*Chairman.*) Will you hand that drawing in, so that it can be put on the notes?—Yes.

1994. What do you say about the necessity of watering?—I think there is a necessity.

1995. Do you think it is done in the district?—It is only done to a very slight extent.

1996. Ought it to be done more?—I think it is very desirable that it should be.

1997. Do you think that this General Rule does not give you sufficient power to enforce watering?—There is no power to deal with watering other than in connection with blasting, and the danger of coal-dust is apart from blasting, although it may be closely associated with blasting.

1998. Then do you think there ought to be some general rule quite irrespective of blasting, to provide that in dry and dusty mines a certain amount of watering should be done?—I think so.

1999. You think that ought to be?—Yes, I think the time is ripe for it.

2000. Then would you water by zones, or would you water the whole mine, or how would you do it?—Where it can be done it is better to do it altogether, that is, by taking pipes into the far end of the haulage roads. The danger is largely in connection with haulage—apart from the coal-dust going down the shaft, which I have spoken of—it is on the haulage roads. Take a water-pipe to the end of the haulage roads, and at fixed intervals have standpipes for the use of hose between those fixed points, to water. That is the best method. Now it is alleged that the introduction of watering into some mines would increase the expense enormously, by reason of the floor lifting. I know there are some extreme cases; I have been shown a place which only a few month before was 8 ft. high, which was then only 4 ft. 9 in. high by reason of the floor lifting. But I look at that from this point of view; if a natural feeder is met with in a mine, giving off water, the owners deal with it either by pumping or other means, and they are not ruined, and the mine is not stopped, but they go on working. Personally, I am inclined to think that much more is made of that lifting of the floor than would be borne out in actual practice. But if there be some mines where that difficulty would be extreme, then I hold that the introduction of a wet zone would be infinitely better than nothing at all, and so far as my experience goes (I have been associated with some very serious explosions), I think 100 yards of thoroughly wet zone in the haulage roads (and if the length were considerable then you might have more than one), would stop coal-dust explosion passing that. There has been certainly much good work done by watering the wagons in extreme cases. All coals are not alike, but some of the coals are very friable, and some coals are very dusty, and in extreme cases by watering the journeys, as it is called—by watering the top of the coal on the wagons at the commencement of the haulage, and, it may be, at another point—you would meet that difficulty. I am quite sure, apart from legislation, there is much being done, and much consideration is being given to this subject.

2001. You think the managers are quite disposed to take a reasonable view of their duties with regard to watering mines in your district?—I think they are.

2002. Then with regard to shot-firing, do you think it ought to be prohibited during the shifts?—In my district they use the so-called safety explosives very largely, and we have no difficulties. Last year we had only one accident with a detonator; a fireman was injured, and he was prosecuted. I cannot call one to mind this year. The introduction of the Explosives Order has improved matters very considerably.

2003. Before we go to the Explosives Order I should like to take you back to Rule 12, Sub-section (h) of the Coal Mines Regulation Act, which provides: "If the place where a shot is to be fired is dry and dusty, then the shot shall not be fired unless one of the following conditions is observed, that is to say:—(1) Unless the place of firing and all contiguous accessible places within a radius of twenty yards therefrom are at the time of firing in a wet state from thorough watering or other treatment equivalent to watering, in all parts where dust is lodged, whether roof, floor or sides." I understand that it is considered by, at all events, some of the inspectors, that that provision has been practically superseded by the provision in the Explosives Order, which only requires watering where shots are fired in haulage roads, and not where shots are fired in the working face. Do you consider that that ought to be so, and that this provision in Rule 12 (h) is a provision which is not necessary in the case of shot-firing in the working face?—I know of some mines in my district where they still water under this Sub-section (h).

2004. We have had it in evidence that they do not?—I have myself known cases where they have introduced ordinary watering cans with a rose to distribute the water.

2005. Is it altogether a wise provision that requires watering where the shot is fired; would it or would it not be better to have a provision which would necessitate watering a certain distance away from the shot, although the place where the shot is fired might be dry and dusty; and then has it not been found, in tracing the causes of these explosions, that the explosion does not gather force until it has gone a considerable distance, so that if the watering took place some little distance away, 10 or 20 yards away from where the shot is fired, would not that do as well or better than watering quite close to where the shot is fired?—I must confess that is new to me. I should have thought the place to stop was the first, the initiatory place. It is quite true there may be little force there, but certainly it commences there; to leave the place dry and dusty for 10 to 20 yards from the shot, then water for 10 to 20 yards, would not be wise.

2006. Then you say that Rule 12 (h) is carried into effect in your district?—Wherever it is discussed with me I do my best to get it adopted.

2007. Then there is, no doubt, an alternative, where the watering would injure the roof or floor; you mean in the alternative to watering, using explosives with water or other contrivance, so as to prevent it from inflaming gas or dust, or it may be of such a nature that it cannot inflame gas or dust. Would you say that in many cases in your mines watering 20 yards round a shot-fire would injure the roof or floor?—I am told so.

2008. With regard to the Rules dealing with misfire shots, you have a Special Rule, I think?—We have an excellent Rule

2009. You think that that Rule is all that can be desired?—Yes, I think so.

2010. And that it deals satisfactorily with that question?—Yes.

2011. Do you think that Rule might well be made a General Rule?—I am reluctant to speak of other districts than my own. It is in force throughout my district.

2012. And it works well there?—Yes.

2013. As regards the keeping of explosives by miners, would you allow them to keep explosives, as they are permitted to do under certain conditions, in their own houses?—I think it is not at all desirable. I only know of one case in my district where it is done, and the circumstances of that are very exceptional. That is the Bradford Colliery in the City of Manchester, which is surrounded with dwelling houses and buildings. I have brought this matter several times before the Home Office; it is an extreme case, and I only wish to mention it to show that there are difficulties. I will read to you a letter which I have received from the agent of that colliery, dated July 9th: "Dear Sir,—Storage of Explosives. I have made some inquiries into our working arrangements, and find that there are 120 to 130 powder cans or cases in general use, and if a store had to be provided for these with a limit of 5 lbs. each can, it would be necessary to have a licence for upwards of 600 lbs. In addition, we have to keep a store of explosives for giving out to the men as at present. I find that Thursday is the day in each week when there is the greatest demand, showing an average of about 180 lbs. for that day.

* See Plates I. and II.

Digitized by Google

Mr. J. Gerrard.

26 July 1906.

We have two buildings at the colliery registered under Mode 'A,' for storage, viz:—One for gunpowder, with a limit of 200 lbs., and one for mixed explosives for 60 lbs. weight. If we discontinued the use of gunpowder, the limit for mixed explosives would be 60 lbs. each": that is, they can use it for gunpowder up to 200 lbs., but they can only use it for safety explosives up to 60 lbs. "Under the Explosives Act we are informed that further similar premises cannot be allowed, so we cannot increase our licensed capacity. As you are aware, the distance from the colliery to the magazine at Clayton (about 1¾ miles), precludes the use of that place for daily storage of the men's cans, and in any event our licence there for all purposes is limited to 1,000 lbs. of mixed explosives. I believe also that explosives are not allowed to be moved on public highways during the period between sunset and sunrise, or a limited period after and before the same. The figures given above are for the Parker Pit, but as we are opening out another pit our difficulties will increase, in fact we shall have a great deal of trouble to meet our requirements with existing limits of licence." My point is that it is easier for the manager of this mine to use gunpowder than to use one of the safety explosives, owing to its conditions. There the police have given a licence to each worker to take home a can by reason of this difficulty of storage, and if that is withdrawn, and the agent is compelled to store at the mine, he says that owing to its peculiar conditions he will have to shut up the pit. I think it is unfortunate that there should be any hindrance to the use of safety explosives, and if there could be some elasticity it is very desirable.

2014. So that you would alter the Explosives Acts to the extent of making it an easier thing to get certificates to keep safety explosives rather than gunpowder. At present it is the other way about, apparently—it is easier to get a certificate which will enable you to keep a large quantity of gunpowder than it is to get a certificate to keep a large quantity of safety explosives?—That is my point. It further arises in connection with this: this is the only mine that I know in my district where the men take home explosives, and I think it is very objectionable that they should take them home, and I, personally, should like to see it stopped. But I have mentioned one exceptional case.

2015. Yes, in which it is a difficult case to deal with?—Yes, it may be exceptional; it is not the rule, but is the exception, and it is very difficult.

2016. Then do you think that miners should be compelled to buy their explosives from the owners?—That is what they do. I have no difficulty of that kind.

2017. And do you think that the owners should be obliged to provide a convenient store? I suppose if the men are obliged to buy from the owners, the owners should be obliged to provide a convenient store?—Yes.

2018. I suppose they do in your district?—Yes.

2019. Have you anything more to say about explosives?—No.

Timbering

2020. Then as to timbering, how do you think these Timbering Rules work? You have Special Rules as to timbering, I believe?—Yes. We have, I think, the latest improvements embodied in our Special Rules. The coalowners were very good. They met Mr. Hall, myself, and the representatives of the Lancashire miners, and we had several days' long discussion, and there was unanimous agreement at the close.

2021. You have had rather a large number of cases of accidents from falls of roof lately in your district, fatal and non-fatal?—I think we have had the lowest in any district in the kingdom—it is a record.

2022. I see that you have had only eight fatal accidents last year, and eight deaths from falls of roof in the working places, and you have had two deaths from falls of roof on the roads?—Yes, it is a remarkable reduction.

2023. That compares favourably with last year with regard to fatal accidents. I think it compares favourably with every year previous?—It is the lowest.

2024. Therefore in your district, at all events, these accidents from falls of roof are not increasing?—On the contrary, they are decreasing.

2025. But thoughout the whole of the country, apparently, they are somewhat on the increase. That is not so in your district?—No. I do not think it is wise to consider one year, but I think a series of years should be reviewed. I am very interested in watching every day this year to see what the difference is. Up to now we have had only six fatal falls of roof in the working place, and, oddly enough, six on roads. We distinguish where the fatality occurs, because our regulations with regard to timbering apply to the working place, but not to roads. We have dealt with the security of the working places in my district, reducing the number of fatalities in the working place, and it is interesting to see how many occur on the roads. But so far there is not any marked increase from last year. It is rather more: in half the year six in working places. I should like to say, with regard to that, that there has been a revision of the distances: when we first put this into operation some managers wanted to be what they called on the right side, and wanted to have a margin, to avoid being censured or complained of, and they fixed very unreasonable distances as the maximum distances for timbering. Now they have in many cases revised those distances, and we are getting some very reasonable distances. Here is one notice (*produced*), where the maximum distance must not exceed 2 ft., and the coal face must not be taken more than 3 ft. in advance of the nearest row of props or other roof supports. I have a number of such notices. But it would be quite sufficient to say that the revision which is taking place with regard to distances is, I think, having a marked effect. If your Lordship would permit me, I should like to show how anxious some of the people are to reduce these accidents from falls. (*Witness produced diagram.*) This is an illustration with regard to securing systematic timbering. "Sketches of systematic timbering to comply with Home Secretary's recommendation. Distance between sprags or cockers must never exceed 5 ft." Then they have this illustrated diagram posted in the mine in prominent places.

2026. Is that commonly done throughout your district?—No, it is only done at one colliery.

2027. Do you suggest that other owners should copy that method?—I think it is desirable where the conditions approach those conditions.

2028. (*Mr. Ratcliffe Ellis.*) That is the New Moss Colliery?—Yes.

2029. (*Chairman.*) Have you anything more to say about timbering?—There is only one remark I have to make, and this is associated with the use of the gablock: I think that comes under the heading of timbering. I have here a sketch*, which is extremely interesting, of a system of timbering in force in a certain colliery in my district. There are four mines, and there is not a very large output, but they have not had a fatality for 53 years from falls of roof. They have raised 5,500,000 tons of coal, and they have not had a man killed Their timbering is on these lines, and this is a section which shows it. They set props 8 in. apart only, and they have two rows 2 ft. apart: as a consequence the roof breaks down close behind the timber, and rarely disturbs this working portion. (*Pointing out on section.*) *This* is absolutely intact and unbroken for week after week and month after month, and the miners just put one arm between the props *so*, and with the hammer knock out a prop, and it comes out as easily as can be: I have seen it done. Then, after the removal of the prop, the broken reef follows and settles down, and there is no more trouble. In a mine like that where they have adopted such a system of timbering, to require every prop to be taken out with gablock and chain would be absurd. The conditions are such that I think it my duty to call attention to the point in connection with this mine. They have not had a fatality for 53 years, and I think with regard to injuries I do not remember five in the 15 years of my time there. It is attributed solely to the close timbering: the props are used again and again. I do not know whether I have mentioned the name of the colliery—the Arley Mine; it is a 4 ft. seam, and the cost of timbering under this close system is less than 2d. per ton.

2030. What is the usual cost of timbering?—It varies very considerably.

* See Plate III.

Digitized by Google

PLATE III.

PLAN.

SHOWING THE SYSTEM OF TIMBERING IN THE ARLEY MINE WORKINGS OF A NORTH EAST LANCASHIRE COLLIERY.

Scale 30 Feet to an Inch.

Mr. J. Gerrard. 26 July, 1906.

Boilers

Mr. J. Gerrard.

26 July 1906.

We h
Mode
a lim
60 lb
powd
each
200 l
sives
infor
allow
As y
the r
the u
cans,
poses
belie
move
sunse
fore
Park
our
great
existi
easie
than
condi
each
diffic
the a
that
shut
shoul
sives
desir

201
to th
ficate
powd
parer
enabl
than
of sa
arise
that
explo
they
like
cepti

201
with
but i

201
pelle
is wh

201
oblig
the n
shou

201

201
sives

Timbering

20
Timb
to ti
latest
The
myse
mine
there

20
of ac
fatal
in ar

20
dent
the
falls
redu

20
rega
ably

20
accid
cont

Digitized by Google

2031. Would 2d. per ton be a large or small sum?—That is very small, comparatively.

2032. (*Mr. F. L. Davis.*) What sort of roof is it?—That is a question which requires explanation. I can show you the conditions of one area surrounded by faults; 200 yards faults, and 141 yards faults, and anyone knowing anything of mining would expect not a very good roof there.

2033. (*Mr. Ratcliffe Ellis.*) Not in that vicinity, but generally what is the roof like? Is this an East Lancashire mine?—An East Lancashire mine, and the roof is good, I submit, because of the system of timbering: it is kept intact, and it is not allowed to break, except where the coals are removed, and then it is better down there. But to say that it is a good roof without that explanation would not be fair: they could very easily have a bad roof if they altered their system of working, and if they altered the mode of timbering—they could very soon have a broken, heavy roof. In another portion of the mine they have a goaf on each side of a working face 200 yards wide, so that you could very soon have a bad, broken roof.

2034. But I think our Lancashire rule does not make the use of the gablock and chain obligatory in all cases?—You are perfectly right; in one portion of the district, however, they would wish to make the use of the gablock and chain compulsory, and at the Wigan Coal and Iron Company's mines they have a by-law requiring the gablock and chain to be used for every prop that is drawn. But to put that into operation at this mine would be very unreasonable.

2035. (*Chairman.*) I quite understand?—I wanted to explain the difficulty of having a hard and fast rule for the whole of a district, requiring the use of the gablock and chain. It would be just as unreasonable there, and probably it might be considered unreasonable to enforce that system of timbering—the close system of timbering—at the other mines.

2036. With regard to haulage accidents, I see there were five fatal accidents (five deaths), and 35 non-fatal accidents, and then there are another six to be added on; so that there are 41 non-fatal accidents, and 42 persons injured. How does that compare with the previous years?—They are far too many.

(*Mr. Ratcliffe Ellis.*) The General Rule bearing on this point is Rule 28.

(*Chairman.*) Yes. "A single linked chain shall not be used for lowering or raising persons in any working shaft or plane except for the short coupling chain attached to the cage or tub."

(*Mr. Ratcliffe Ellis.*) That is to say, I suppose, the coupling chains between the tubs. But if there is an endless chain that rule would apply to it.

2037. (*Chairman.*) Yes. Do you think that rule is observed in your district?—Yes.

2038. What do you say as to these haulage accidents?—I think many of them are due to want of room.

2039. Would you suggest that haulage roads which are not wide enough for a person to stand between the side and the tubs should be made wider?—It is very desirable, but it would be difficult to enforce; the conditions vary much.

2040. Have you any suggestions to make?—I do not think that in my district the question is urgent.

2041 There are a large number of non-fatal accidents?—Yes.

2042. Although the fatal accidents are not very numerous?—The fatal accidents are not numerous. The use of special travelling roads is very desirable on extremely busy haulage roads; that is the first point, and that is apart from the question of room.

2043. Special travelling roads?—Yes; the provision of room would not meet the case of runaways.

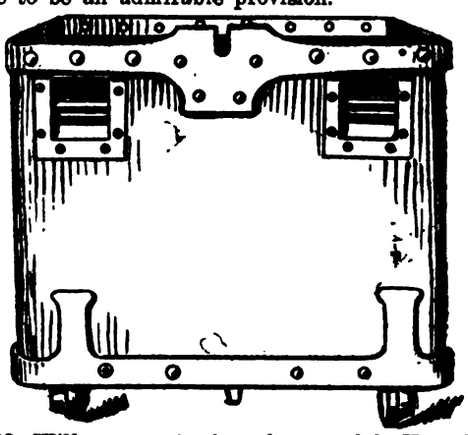
2044. What do you mean by "special travelling roads"?—That the men should travel on roads other than haulage roads—that is one point.

2045. You would have separate roads made—drifts or something of that sort—would you?—They are in use; it is very desirable frequently.

2046. You would suggest that more should be in use?—Yes; it is even better than the room provision, because to say that there shall be 3 ft. space does not meet the case of a break and a runaway at all, but if there is another road then it would not matter.

2047. You think more might be done in that way by providing separate roads?—I think so. I should like to mention in connection with haulage that we have a number of cases of injury—you spoke of the number of non-fatal accidents. This question has had much attention with regard to drawers hanging by their hands on the tops of the wagons. I have here an illustration of a provision to meet that by having handles to wagons. (*See sketch.*) The arrangement is rather expensive; I think it costs about 2s. 6d. per wagon, and the ordinary bow, which is frequently used to hook on to the wagon, would only cost about 6d.; but those are forgotten—they are left off, and not put on. There is a large firm in my district which is considering the question of providing every wagon with two handles at each end of the wagon so that fingers will not be crushed either by the coal in the wagons or by passing under low places. It seems to me to be an admirable provision.

Mr. J. Gerrard. 26 July, 1906.



2048. Will you put in that photograph?—Yes. That comes under the head of haulage. I am sure that in other districts there must be a large number of injuries; several medical men have drawn my attention to the fact of the number of cases there are at the hospitals and infirmaries of injuries to fingers and to hands in connection with the wagons.

2049. With regard to the examination of boilers, under Section 11 of the Factory Act every boiler must be examined once in 14 months. Do you think it is desirable that the provision should be extended to mines?—It is done much more frequently than that at mines.

2050. Then there are provisions for reporting the result of such examination, if you will refer to the Factory Act, Section 11?—Yes.

(*Mr. Ratcliffe Ellis.*) It is General Rule 32 of the Mines Regulation Act.

(*Chairman.*) Yes. "Each steam boiler, whether separate or one of a range, shall have attached to it a proper safety valve, and also a proper steam gauge and water gauge, to show respectively the pressure of steam and the height of water in each boiler."

2051. (*Mr. Ratcliffe Ellis.*) There is a rule that all the machinery shall be kept in order?—We examine our boilers much more frequently than that. I follow your point now. It is to have a report of the examination of the boiler with regard to coal mines similar to that which is required by the Factory Act. We have not only daily reports upon the condition of the boilers, but I think our boilers require to be cleaned every month. I know that is the practice certainly, that they are not to go more than a month without cleaning. Then when cleaned they would be examined by the cleaner. But I think what is aimed at there is to have an examination made by thoroughly competent persons.

2052. (*Chairman.*) Yes, no doubt?—And a report of that thorough examination made by a competent person, such as the report which is obtained where boilers are insured. That insuring of boilers is a great advantage, and I think it works extremely well. How far the time is ripe for making it compulsory I do not know, but boiler inspection by the insurance companies works extremely well; they send thoroughly competent men to examine the boilers, and to make full reports, and if we could have an official record of those examinations I think there is much to be said for it.

Digitized by Google

Mr. J. Gerrard.

26 July 1906.

2053. Are all the boilers insured in your district?—Not all. They are largely insured.

2054. Where they are not insured what would you suggest; would you make any rule that should apply to boilers which were not insured?—I think the number are comparatively few. No inconvenience would be felt if they were required to have a competent examination at least once a year.

2055. And that a report of the result should be sent in to the inspector, as you say?—Yes.

2056. I see there is a Special Rule, No. 91, requiring that a competent person, appointed by the owner, agent or manager for that purpose, shall examine the boiler externally after cleaning it, and also the mountings, and he shall also see that it is examined internally by the person appointed to do so. Then the rule goes on to say that no boiler shall be set to work unless it is examined and passed.

(*Mr. Ratcliffe Ellis.*) That would be by the person sent to do it. General Rule 5 requires that the machinery is to be examined, that is, the machinery above and below ground.

2057. (*Chairman.*) Do you think that is enough, or do you think, having regard to the provisions of the Special Rule which I have read, that the matter might be left, as regards your district, where it is?—I am satisfied myself.

2058. That is to say, you are satisfied with the way in which things go on in your district?—Yes.

2059. Now we come to shaft accidents. What do you say with regard to having some sort of certificate of competency for engine-men to prevent over-winding?—I think there is much to be said in favour of securing competency of the winder, but I should want something more than that to prevent accidents from over-winding. I do not think you would cover it all by that. We have largely the use of detaching hooks and safety hooks, and we have an increasing number of other mechanical arrangements to meet failure on the part of the engine-men.

2060. Are you satisfied that in your district the engine-men are competent persons as a rule?—Yes. I think two years ago we had not a single fatality in shafts. They are the deepest shafts in the Kingdom. I think they are splendid men, but how far it is desirable to secure competency by certificates is a matter for consideration. I do not know how an engineman could be examined for coolness and nerve; these are very necessary qualifications in a winding engineman.

2061. At all events, there is nothing to complain of in your district with regard to want of competency?—No.

2062. With regard to the subject of safety-catches, have you anything to say?—With regard to safety-catches to meet failures of the rope I think there are more safety-catches in use in the Manchester district than in any district of the kingdom. Their efficiency depends upon the guides being wooden guides—Owens' old patent arrangement of clutching with a toothed jaw to dig into the wood guide. But I am also bound to say that there are as many failures to be recorded as successes: they balance one another, and I think in my Report for last year I give particulars of a success and of a failure, and I deal with the number in use. At page 30 of my Report for last year I say: "Safety-catches for cages. Fifty-four pits have the safety-catches attached to the cage, chiefly Owens' arrangement." We want an arrangement for iron rope guides and iron rail guides. You cannot depend upon Owens' principle for rope guides or for rail guides.

2063. Rope guides are coming into operation?—Yes, they are largely used.

2064. (*Mr. F. L. Davis.*) They are mostly wood guides in your district?—There are a number of pits fitted with wood guides still working, and I think largely by reason of the introduction of this Owens' safety-catch; but the wire-rope guides are used more than wooden guides.

2065. (*Chairman.*) Do you think it is safer to have these wood guides and the catches than to have wire ropes?—I would not compel them. All Andrew Knowles' pits are fitted up with wood guides having Owens' safety-catches.

2066. Is a safety-catch of any use with a wire rope? I do not attach any value to them. There are several kinds

2067. (*Dr. Haldane.*) May I ask what is the cause of the failure of safety-catches with wood guides? You mentioned some cases of failure?—I have frequently drawn attention to it: in some way they got locked: instead of pressing into the guide the bars were locked and did not dig in; there was not a scratch to be seen on the surface of the wood guide. At page 19 of my Report for 1905 I say: "At Pendlebury Colliery, when full cage was being raised at about 100 yards from the top (shaft 606 yards deep) the rope drew from the cap, the cage fell to the bottom of the shaft, Owens' catches failed to hold, in some manner they got locked open, scarcely a scratch was to be seen on the wood guides." In another, at Mosley Common Colliery, where the capping failed, "The rope drew from the cap, the cage fell several yards until the safety-catches (Owens') gripped the wood guides and held the cage." I can give case after case of failure and success: they are not absolutely reliable and not absolutely to be depended upon. That is the difficulty with regard to enforcing a General Rule.

2067.* As to the capping of winding ropes, do you think that the capping is sufficiently looked after and that it is sufficiently tested?—I think they go too long. Experience proves now that it is desirable to have a limit, and I think in general practice it is found that they should be required to re-cap every six months, and to take off a portion of the rope; it follows that it is necessary not merely to re-cap. but to take off a portion of the rope so that you cap on to a different part of the rope, and you also move the position of the wearing on the pulleys, and so on, by taking off a portion of the rope. I think the time has arrived to require ropes to be re-capped periodically.

2068. Every six months?—At least every six months.

2069. What do you say about bars or gates at cage ends?—We are constantly having men falling from the cage and thrown from the cage, and personally I think a very simple contrivance could be placed to prevent it.

2070. I see there is a photograph produced of a protective gate in your last annual report; do you think that is a valuable invention?—I do. I am told that it is in use at about 40 places. Other inventions to attain the same end might be adopted.

2071. At any rate, you think that is a matter which is well worthy of consideration, as to whether cages should have bars or gates?—I do. I think the year before last there were eight fatalities—eight cases of falling from cages.

2072. With regard to surface sidings, do you think anything can be done to lessen the number of accidents on the surface?—Those again are chiefly caused by want of room. Wherever there are new winnings they give ample room and the difficulty is to deal with established mines, and to require them to alter is a very serious matter. But the chief cause is the want of room about the screens and where wagons pass. The way in which most of our siding accidents occur is in connection with the screens—the men who have to move the wagons and place them under the screens to receive the coal get crushed between the wagons and structures at the sides.

2073. Then in cases where the surface is very much crowded up with wagons and with men, I suppose now there would be power, if things got very bad indeed, to compel the colliery owner to do something to make the conditions safer?

(*Mr. Ratcliffe Ellis.*) We have a new rule providing for that.

2074. (*Chairman.*) That is to say, there is a special rule which provides for that?—Yes.

2075. Do you think that anything might reasonably be required to be done in your district that has not been done in the way of avoiding these surface accidents?—I think it would do good to say that in mines established after a certain date there shall be the provision of ample room—a fixed amount of room provided between the wagons and structures or walls, and so on.

2076. You think that something of that kind might be made obligatory?—Yes, upon all new mines.

2077. But what do you say with regard to old mines: you would deal with the matter very much as it is

Digitized by Google

dealt with by your special rule, perhaps, would you?—Yes: in our case, that is so.

2078. (*Mr. F. L. Davis.*) Your point is that it is a physical impossibility in many places to make more room at the old collieries, the existing collieries?—Yes, I recognise that, but I say that at new collieries there might be compulsion.

(*Chairman.*) As regards old collieries you say there is some provision?

(*Mr. Ratcliffe Ellis.*) In the new rules you will find we have a rule about warnings when the wagons are being lowered down to the screens.

(*Witness.*) It is the 22nd additional rule: "Whereever railway wagons are being pushed past the screens the brakesman shall ride on the nearest approaching wagon and the driver of the locomotive shall attract attention by whistling."

(*Mr. Ratcliffe Ellis.*) So that where you cannot find a space you take means to guard against people being in a dangerous part, and the danger coming upon them suddenly?

2079. (*Chairman.*) Yes, I follow that.

(*Mr. Wm. Abraham.*) What is the effect of that rule in practice?—It does not meet the case of wagons being moved by the workers at the screens: it only meets the question of wagons being taken by the locomotive to the screens, but the moving of wagons by the workers themselves after they have been placed of course is not met by that.

2080. (*Mr. Enoch Edwards.*) Is that where you get your accidents?—The workers frequently get caught of course in passing from one side of the wagon to another.

2081. (*Chairman*) Are you satisfied with the mode in which special rules can be established? It takes considerable time to get a special rule established, does it not?—The system worked very well with us; the owners and the representatives of the men met us, and we got on very well. I should like to say with reference to the drawing up of the rules on the making of a new mine, it is quite unnecessary to have to post for 14 days a copy of the special rules and to forward them to the Secretary of State for 40 days in order that they should be established. There ought to be a few words dealing with the continuance of an existing code of special rules at a mine the day the mine starts without any such process of establishing. It is perfectly absurd and there is no reason for it at all. A few words could easily continue and establish a code of rules at all mines within that district, so as to apply it to new mines.

2082. It is only in the case of your wanting to have some different special rules enforced at a new mine that you say there ought to be this delay in establishing it?—That is so.

2083. Do you consider that the system by which special rules are adopted, namely, by arbitration in cases of disagreement is a good way of dealing with the matter?—It is cumbersome. It is probably in the interests of the owners, but it is very cumbersome.

2084. Do you think it would be better to adopt the procedure under the Factory Act, where you have an inquiry instead of an arbitration?—I do not think coalowners care to have the Factory Act thrown at them.

2085. If the provisions of the Factory Act are better provisions I do not know why they should not be put into operation with reference to mines?—But consider this: under the Factory Act if there was the same procedure with regard to coalowners, what voice would they have?

2086. But before the draft rules can be adopted the Secretary of State must give opportunities to persons making objections, and he must consider objections, and then he may appoint a competent person to hold an inquiry.

(*Mr. Ratcliffe Ellis.*) It is optional—he *may* do that.

(*Chairman.*) That is another question. Perhaps the procedure might be modified in the case of mines. The Factory Act provides that the Secretary of State may appoint a competent person to hold an inquiry with regard to any draft regulations and to report to him thereon, and that the inquiry shall be held in public, and so on, and that there shall be witnesses examined on oath.

(*Mr. Ratcliffe Ellis.*) I do not think there would be much saving of expense; there might be a saving of time by that.

2087. (*Chairman.*) With regard to factories, the rules would apply to the whole of the trade, and to all factories carrying on that particular business, but in regard to coal mines you have to establish rules separately for every mine. That point you have already dealt with partly, because you say that when a new mine is opened you only want to apply to it automatically the special rules in force in the district?—Yes, that is my view.

2088. (*Mr. Wm. Abraham.*) Establishing special rules for every mine is not carried out in practice.

2089. (*Chairman.*) Then do you not think that some special rules could be dealt with so as to be made general; do you not think there are too many special rules, and perhaps too few general rules?—The object is to bring before the different classes of workers the special rules which they have to observe; thus we have the special rules under the head of certificated manager, undermanager, fireman, and so on. That leads to duplication and repetition. If you were content to do away with that, not only with regard to the workers, but as to the different heads, for instance, special rules referring to machinery, plant and shafts, special rules referring to signals, and special rules referring to safety lamps—if you gave that up and had the General Rules alone to deal with the matter, a great many of these special rules could be withdrawn. It would be simpler.

2090. Exactly; but I should have thought you might have published your rules somewhat in this way: for instance, under the head of inspection, Rule 17 is the first here; you might print at the top of that any General Rule applicable to inspection and then put the Special Rules after it and say, "with regard to the managers," and so on, and so with all the other headings as to manager, under-manager, and so forth; you might begin with the General Rules, and then go on to say what the Special Rules were?—Yes.

2091. My point was that it might be advisable to have more General Rules and fewer Special Rules, that is to say, to put a great deal of what is contained in the Special Rules into the General Rules applicable to all coal mines throughout the kingdom?—That would simplify the Special Rules considerably. Together with simplicity, efficiency should be considered. That, after all, is the chief reason for having Special Rules.

2092. Well, it would not make very much difference, but it would create a great deal more uniformity with regard to the rules throughout the United Kingdom?—That is so.

2093. But you would have to do, I suppose, just the same amount of printing as you do now; all those Special Rules would have to be printed just as they are at present. You have nothing more to say as to setting up Special Rules?—No, except that I think it is very desirable to hear what the men have to say. I personally have always found it an advantage to meet representatives of the men.

2094. We come now to investigation into mine accidents. I daresay you know that on some occasions dissatisfaction has been expressed at the refusal of the Secretary of State to have a further investigation after a Coroner's inquest. Are you as a rule satisfied with what takes place before the Coroner?—We have some excellent Coroners, and they give the fullest scope to inquiries. It is only very rarely indeed that any difficulty arises from their pulling up either me as inspector or a representative of the men; that is, speaking of ordinary inquiries. With regard to large disasters I recognise the advantage of having a further inquiry.

2095. Frequently you think it would be advantageous to hold a further inquiry?—Yes, in connection with big accidents.

2096. Do you think that inquiry has frequently been refused when it ought to have been granted, in your experience?—I think it is not for me to say.

2097. You think that where there has been any reasonable ground for a further inquiry it has been granted?—I am not prepared to sit in judgment upon any action of my colleagues, or of the Secretary of State.

Digitized by Google

Mr. J. Gerrard.

28 July 1906.

2098. But so far as you are concerned, you have no fault to find with the working of the present system under Section 45 of the Coal Mines Regulation Act, which permits a further inquiry?—That is so, with regard to my district.

2099. Then you believe that usually the causes of an explosion are properly brought out before a Coroner's Jury?—Yes.

2100. Do you nearly always agree with the verdicts of Coroners' Juries?—That is rather a difficult question.

2101-2. I gather that sometimes you do not agree?—That is so.

2103. Sometimes you consider that the Coroner's Jury put upon a wrong man the responsibility for the accident?—I am considering ordinary single fatalities.

2104. You think that the Coroner's Jury sometimes go wrong on these inquiries?—Yes.

2105. And that if you yourself were a member of the Coroner's Jury you would give a different verdict sometimes?—Yes.

2106. You do not always agree, naturally?—I do not always agree.

2107. Have you attended any cases where there have been coroners' inquests after a big accident, in which a good many people have been killed?—Yes.

2108. Are you satisfied that on all those occasions the facts have been brought out properly?—I know of one case in which it would have been a distinct advantage to have had a further inquiry.

2109. Was that further inquiry pressed for by the men on that occasion?—No.

2110. Then the men were satisfied, so far as you know?—There was no expression on the part of the men.

2111. With regard to rescue work, what sort of ambulance work is carried on in your district?—I think it is very largely practised with regard to first aid. We have a great many classes, and several very interesting competitions take place amongst the first aid ambulance men.

2112. Do you think matters are progressing satisfactorily in your district as regards ambulance work?—Yes. The only remark I would make in connection with examinations is this. Our board passed a resolution two years ago that it would be well to require every candidate for examination for a first or second class certificate to possess a first aid certificate—to make it a condition.

2113. Is that done now?—No, difficulties were foreseen by the Home Office, and the question was postponed

2114. Do you think that a mine manager should hold an ambulance certificate?—Yes.

2115. That is not so at present, I suppose?—No.

2116. With regard to rescue corps, have you a rescue corps in every district?—There is only one rescue station in the United Kingdom, that is at Tankersley Colliery, South Yorkshire. Mr. Garforth, at Normanton, Altoft's Colliery, has an experimental gallery; and a committee of coal owners have had a number of meetings in Manchester, and have visited the South Yorkshire Rescue Station and the Rescue Experimental Gallery at Altoft's, Mr. Garforth's Gallery. I accompanied them, and I hope that very shortly there will be a station in Lancashire. Unfortunately, the movement has been blocked by reason of desiring to have the views of this Commission or the Report of this Commission on that point. I regret it. I should have preferred their going on independently, and doing something which could have been shown to the Commission, so that they could see what another group of men thought with regard to the appliances. However, we are moving in the matter.

2117. Do you think that if this Commission should report upon ambulance work and the work of rescue corps, that would lead probably to their recommendations being, at all events, very carefully considered?—I think so; and I think it is desirable that it should come as quickly as possible. I should say the iron is hot for it; there is a disposition now throughout the whole country to take the matter up; this terrible disaster at Courrières has stirred us up to something of this kind, and I think throughout the whole country there is a desire to move. If that desire passes away—and we know that there is a liability to that—it might be difficult to warm them up again. So that it is desirable that something should be done in this matter speedily.

2118. Do you know anything about the various appliances which are used in rescue work such as pneumataphors, to enable people to breathe the vitiated air?—I have followed the question very closely both here and on the Continent. I have been twice to the Shamrock Colliery, and have seen Herr Meyer's station there, and am sure that the appliances and the apparatus are so far improved that they can be depended upon, and that by extended use we shall have further improvements made. Those improvements are more likely to be made by the extended use.

2119. Have you had experience of the various kinds of pneumataphors. There are a good many in the market?—There are. I suppose in the forefront I ought to place Mr. Garforth's own, which he now calls the "W. E. G.," from his own initials.

2120-1. I do not know that we ought to go into the merits of the various types now. If you have any decided opinion in favour of one form of pneumataphor over another we should like to hear it, and should like you to give us your reasons, but if you have no very decided opinion, I think it would be better to wait for Dr. Haldane's report on the matter?—I am so far prepared to say that Mr. Garforth's apparatus can be thoroughly depended upon. I have seen it used for over an hour, and hard work done with it. I am quite satisfied that Herr Meyer's apparatus is in such a state that it could be depended upon, and that life would not ordinarily be lost in the use of it; and I am convinced that another apparatus called the "pneumatogen," which is self-contained, and which weighs in one small state only 2 lbs., could be depended upon, and could be used to bring out men through a noxious atmosphere: that is to say, the more reliable is the principal apparatus of Garforth or Meyer for the explorer, but I should recommend the carrying of one or two of those lighter apparatus to put upon a man or men in a place of safety to enable them to travel through noxious air to security. I think there is a distinct field for that small light apparatus to be used in that way, not by the chief exploring parties—it is too light for that, and it seems to be not so useful for sustained work—but to enable a person found in a safe part of the mine to be brought out from that point through a noxious air to safety.

2122. Those are matters which will be very carefully investigated?—Yes—they are details.

2123. With regard to the question of health in mines, what have you to say about ankylostomiasis; have you any reason to suppose that there is any trace of it in your district?—No, but I think some excellent work has been done in improving the sanitation of the mines in connection with that disease. The fear of the disease led to great improvements in sanitation; instead of the men relieving themselves anywhere, in all the large and important mines appliances are now provided and stations fixed, and the men relieve themselves in those appliances, and the matter is removed from the mine and brought out.

2124. Do you think such a system ought to be made compulsory?—I see no objection whatever to it.

2125. Do you think that the miners themselves would be quite willing that some such regulation as that should be put forward?—I have never heard a voice raised against it.

2126. If you have nothing more to say upon that subject we will deal with the examination system. Do you think that the working of Examination Boards is all that could be desired?—I did think so until the last Examination, when by some extraordinary mischance, a candidate was permitted to sit when he was not fully qualified.

2127. Then did he pass?—It turned upon this: the Act requires five years' practical experience in a mine, and he was really only slightly associated with a mine: he had not had five years' continuous experience of a mine, but his father was the manager of two small mines, and his father filled up the testimonial which is required, stating that his son had been his pupil for five years and he put in the name of one of those

Digitized by Google

two collieries, which led the examiners who went through the testimonials and statements as to experience, to be satisfied that the youth had been five years at this colliery. Owing to a complaint which was sent to me I looked into the matter, and found that he had only been going two years to that mine, and that his attendance amounted to two or three days a week for that period, and that prior to the two years he had only very occasionally visited the mine: so that clearly he had not had five years' practical experience at a mine.

2128. Well, that is a case of the rules having been broken through, but what do you say to the examination itself?—The examination itself, as conducted at Manchester is, I think, admirable. We have three examiners; one retires every year, so that we have a change; the examiners only serve three years, and then from different parts of the district new examiners come on, so that we get the altering conditions of mining represented in different parts of the district. Those three examiners go through the papers, and the questions are published—they can be seen—and the candidates who satisfy the examiners on the paper that they know something of mining are then brought before them, and put through an oral examination, and no certificate is given until that has been complied with.

2129. Have the candidates to qualify in every subject, or in certain subjects, or is a certain maximum amount of marks allowed to get a man a certificate?—I state the conditions in my Report for last year. All the questions are given there.

2130. Yes, but I want to know whether in your district a candidate is obliged to qualify in all these subjects, or in how many does he have to qualify?—He has to qualify in all of them.

2131. That is not so always: with some of the examination Boards the maximum number of marks, however got, is sufficient. Then in the case of your district a practical knowledge of fiery mines would be compulsory, I suppose?—No.

2132. Is only a theoretical knowledge of fiery mines necessary?—Only theoretical. The reason for that may be put shortly, that we have a number of non-fiery mines, not so extensive as the Somersetshire district, but a number of non-fiery mines in the neighbourhood of Bacup and Rochdale. With regard to those mines, all persons connected with them would be shut out from ever obtaining a position in their own district as manager of those non-fiery mines, if you were to shut them out in that way. On the other hand, it is said that it is open for a man having had no experience of a fiery mine to obtain a certificate and to be put in charge of a fiery mine. It is absolutely improbable, and I do not know of a single case where it has occurred. No owner would be so foolish as to appoint a man in charge of a fiery mine who had had no experience of a fiery mine.

2133. You mean that when a man brings his certificate the mine owner will naturally ask him under the present system several other things: he will not be satisfied with seeing his certificate, but he will ask: "Where did you get that certificate," and if the man is to take charge of a fiery mine the owner will ask him: "What experience have you had with fiery mines"?—Certainly. It would be the first question which would be put to him.

2134. Do you think that is a good system, because you see theoretically, at all events, a man might be sent to take charge of a fiery mine who had had no experience whatever of a fiery mine, that is to say, his certificate qualifies him all over the United Kingdom, although, perhaps it might be gained in a place where practical knowledge of fiery mines was not required?—Well, I like to take an allround view of the situation, and I think it would be extremely unfair. There are a number of non-fiery mines in the Burnley, Bacup, and Rochdale districts, in the neighbourhood of those three towns, and if the owners of those mines were compelled to go into the Bolton and Wigan district to obtain managers for those mines I think it would be unfair. There is no possible chance of a manager of a mine in the neighbourhood of Bacup and Rochdale obtaining charge of a mine in the Wigan district.

2135. That is not because of his certificate, but it is because further inquiries would be made, I suppose?—I agree.

2136. But do you not think there might be two classes of certificates, say, one for fiery mines and the other for non-fiery mines?—That would remove that objection.

2137. Do you not think it would be a good thing if that were so, and that the mines should be separated in that way, so that the certificates should state whether a man was qualified to take charge of fiery mines, or whether he was not?—If it does not arise in practice I fail to see why it should be done. I see no objection to it, but I cannot call to mind a single case in practice of its having been done.

2138. You are not, I suppose, in favour of a uniform standard throughout the United Kingdom?—With regard to age, and with regard to the examination being open, I think there should be uniformity. For instance, we have a great number of candidates come to the Manchester district every year because it is open to everyone employed in a mine to sit—colliers sit, at Manchester, and several have obtained first-class certificates of competency, and have made excellent managers. In the Newcastle district, up to recently, no collier could sit, and they came to Manchester and swelled our numbers, and led people to say: "The reason why they come to Manchester is that it is easier to obtain a certificate at Manchester." Although I publish every year the percentages of passes at Manchester, and show that our percentages are even lower than percentages in other districts—I do not think we ever get more than 25 per cent. of passes—still the charge is thrown at us that many come to Manchester because it is easier, one of the reasons being that it is open for anyone employed in a mine to sit at Manchester, but that at Newcastle they cannot sit. I think, perhaps, it is not for me to express an opinion about Newcastle; they know their own business better than I do; if they have an abundance of managers, and of men qualified to manage their mines in the Newcastle district they can restrict, but it is not in accordance with the Act, from my point of view: the Act throws it open for anybody employed in a mine to sit for examination.

2139. Then do you think that the Newcastle district, and all other districts which have made a distinction between the various kinds of services at mines, and only require practical experience in some official positions, should be required to do as you do, and to take any experience of mines of any sort or kind as sufficient?—I think they do not comply with the Act there, and that we do.

2140. You think that they should be made to comply with the Act, I suppose?—Yes.

2141. As regards certificates for managers of metalliferous mines, do you think they ought to be required to obtain certificates?—Well, metalliferous mines are on such a small scale: if there was any development in them it would be desirable, but in my district they are very small.

2142. (*Dr. Haldane.*) Have you not got the ironstone mines of Cumberland in your district?—No.

2143. Whom are they under?—Newcastle district—it is the largest.

2144. (*Chairman.*) I see you have 61 metalliferous mines in your district?—Yes. They are all very small.

2145. Then your attention has not been particularly called to the question of qualifications of managers for metalliferous mines?—My attention was called to the question last week, when I had to go to a little barytes mine in Cork. Two men opened an old barytes mine. They started, and they gave no notice of the commencement of the work, knowing nothing about mining, and they set on seven farm labourers to work for them, and last week a scaffold upon which they were working collapsed and let them down into the water, and there were two lives lost. On the morning of the day on which this occurred those two men had had ladies on this scaffold, the wife and sister of one of them—showing the confidence which they had in the safety of the scaffold, and at three o'clock in the afternoon it collapsed and seven lives were endangered, two were lost and two went into the water, but were rescued. This scaffold had been up 28 years and was more or less rotten. None of them know anything at all about mining. From one point of view it would be a distinct advantage to require a competent person to be employed at metalliferous mines.

Digitized by Google

Mr. J. Gerrard.

26 July 1906.

2146. Then you think that there might be some kind of standard of competency for a manager of metalliferous mines?—I think there is something to be said for it.

2147. I suppose they ought to be classified, as they are very different—there ought to be one standard for one kind of metalliferous mines and another standard for another kind, metalliferous mines being very different?—I have not considered the question. I do not see any reason for a difference of standard in metalliferous mines.

2148. Have you had any question raised as to experience of foreign mines. Do you think that experience in foreign mines might well be made to count in lieu of experience in mines in the United Kingdom; for instance, as a man is obliged to have five years' experience underground, need it necessarily be underground experience in coal mines here, or do you think that experience in coal mines abroad would give him sufficient knowledge?—It is a difficult question. On the one hand it would be a distinct advantage for a young man to have two years' experience of a large and well-regulated modern mine say in Germany; but the German Mines Regulation Act is not our Mines Regulation Act, and one of the advantages of requiring five years' experience of mining here is that the man will know what the law is and what the rules and regulations are apart from mining. He would not attain that experience in connection with a foreign mine.

2149. No, I do not suggest that the whole five years' experience should be abroad; but I suggest that two or three years of the five years might profitably be spent abroad in a mine underground, and that then the man would have plenty of time to learn the rules and regulations in England after he had served in the foreign mines; or perhaps before he served there?—Would it not be well to consider some restriction? All foreign mines are not good.

2150. Then you would have possibly a list of the foreign mines in the different foreign districts which would be acceptable?—That is one of the difficulties. If you open the door here to anyone having been abroad on the Continent it would seem to be too wide. With regard to our Colonies they do not admit our certificates. I had a case brought home to me last month of a man having gone from Lancashire with a first-class certificate; the owner of the mine was willing to nominate him, but the inspector in Nova Scotia would not appoint him, and he had to undergo an examination.

2151. It would appear that you do not get reciprocity in this matter?—No.

2152. You think that perhaps we ought not to accept their certificates unless they accept ours. Is that your opinion?—There is something to be said for that.

2153. Looking at the question from an abstract point of view, and not with regard to reciprocity at all, do you or do you not think it desirable that we should accept Colonial certificates. Supposing, for instance, in Nova Scotia they do not accept our certificates, it may be that there is a very excellent system of examination in Nova Scotia, and that the examination in Nova Scotia may be more difficult to pass than our examination. If that should be the case, would there be any objection to taking a Nova Scotia certificate, even if they do not take ours?—It is a matter which requires careful consideration.

2154. Perhaps you have not thought much about it?—I have thought about it. It has been brought before me several times; but it is not easy to lay down a line.

2155. You have not formed any decided opinion, I may take it?—No.

2156. I have not asked you about the plans of collieries. We have had a great complaint made by Mr. Martin, that colliery owners do not comply with the provisions of Section 34 with regard to plans, and that the plans which are kept at collieries of the colliery working are not always accurate. What is your experience in that matter?—I have had several inundations of water into mines, which have shown the plans to be inaccurate.

(*Mr. Ratcliffe Ellis.*) They have been very old plans, have they not?

2157. (*Chairman.*) Is that the case with any new plans?—No.

2158. They have been old plans which have been found to be inaccurate?—Yes.

2159. Do you think that the present plans in your district are accurate or not?—I have no reason to think that they are inaccurate. Occasionally we have actions for trespass, that is to say, in the case of one coal owner going over his boundary and being charged with obtaining coal from the adjoining colliery. I know how difficult it is to prove such trespass; joint surveys have to be made again and again to establish that. It has occasionally been proved that the plan was inaccurate, but in the main the plans are carefully kept. Still, I am quite of the opinion that the duty of making a plan should not be entrusted to anyone at a colliery. At present it is open to the son of the owner, or the son of the manager, or anyone, to make a plan. It must be an accurate plan, it is true—the work must be done accurately—but it seems to me that the first step to secure accuracy would be to have a competent person to make the survey.

2160. You suggest that no plan should be deemed to comply with the law unless it is a plan which has been signed and certified as being accurate by some competent person who has passed some special examination, such as the examination for a surveyor, or something of that kind?—Well, it might be a period of surveys as a surveyor at the mine, or it might be a certificate of the Surveyors' Institution. We have now some exceedingly thorough Surveyors' Institution examinations, and I am told that they become more and more severe every year. Under several heads you might obtain competency to survey. I have only suggested two methods; that is, a certificate of the Surveyor's Institution, which is a corporation closely looked after now, and a period of surveys as a surveyor. Plans might be dealt with also by persons who have satisfied examiners of their competency by first-class certificate. It may be done in several ways.

2161. At all events, you think there ought to be some standard of qualification for any man who purports to set out a plan of a colliery, and that that plan should be signed by the name of the man who is responsible for it, and that that man should be a man who had shown in some way that he was competent to make a plan?—I agree. I put it shortly—that something more is required than mere accuracy of the plan.

2162. That is to say that there must be something to show that the plan is accurate, whether it is in point of fact accurate or not?—That is so.

2163. (*Mr. Cunynghame.*) At present I think the districts which are assigned to the different inspectors are rather unequal in the number of mines and of miners?—Yes.

2164. I am speaking roughly now; in point of mere numbers, yours is a small district?—Yes.

2165. I do not wish to go into the numbers; we have them here; but it is a small district?—Yes

2166. It is a scattered one, of course, but we know that your time is fully occupied. But might it not be expedient after the lapse of years and the changes which have taken place, to redistribute some of the districts?—Yes.

2167. I mean to cut up those which are larger and to reduce them in size, and to supplement some of the smaller ones by the addition of portions?—Yes.

2168. Of course, in such a division mere size or area, or even numbers employed, would not necessarily be the criterion of division?—That is so.

2169. The real criterion would be the difficulty of inspection and the difficulty of getting about, I suppose?—Quite so.

2170. I do not propose to go into details about that with you. I merely ask that general question as it is one of those which is referred to the Commission. I notice that some of the Boards throughout the country are in the habit of requiring qualifications on the part of those who come to be examined before them?—Yes.

2171. Is there any Statutory foundation for such a requirement?—Not in my opinion.

2172. There are a number of them, and we do not know why it is done: it is a practice which has grown up. I think you told us that you would be in favour of having a mine treated as a fiery mine wherever a cap had been perceived upon a lamp?—Hardly that.

2173. I wanted exactly to know how far you went; you answered the Chairman to the effect that you thought that wherever a cap had been seen that ought

Digitized by Google

to be treated as indicative of fieriness?—Yes, distinctly—as a standard of ventilation.

2174. Would there not be a difficulty, if you simply put it in that form (I am not disagreeing with you—I do not wish to give that impression at all), for a magistrate to say what a "cap" really meant? Would not the magistrate say that if you use a sufficiently sensitive lamp you could get a cap almost anywhere: is that not true?—No.

2175. It is not the fact that you can invent a lamp, or you can produce a very delicate flame which would show a cap, even when there is very very little firedamp?—No: personally I have had no difficulty under that head. I have heard some of my colleagues speak of having difficulty with spirit lamps, but I have had none, and there are a large number used in my district. I cannot appreciate the difficulty.

2176. When you speak of a cap as being sufficient, do you mean a cap on a spirit lamp, or on one of the ordinary oil lamps?—I should put it "on the lamp in use in the mine."

2177. But then, supposing an owner chose to use a lamp which was very insensitive, he would be able to get off, would he not?—Yes, but I cannot conceive such an idiotic owner.

2178. But an owner without being idiotic, might be employing a species of lamp which showed caps with great difficulty, might he not?—I am bound to say that it is open to that, if you put it to me.

2179. Yes. I do not mean purposely doing it in order to cheat you, but there might be cases in which the lamps used in a mine showed caps very imperfectly?—My answer is that I have had no difficulty under that head. Those of my colleagues who have had difficulty can best give evidence upon that point: I have had no difficulty with regard to it.

2180. Then I will not pursue that further. Now, with regard to Rule 12 as to watering; Sub-sections (h) and (i) entirely apply to watering the place where the shot is fired, do they not?—(h) provides "If the place where a shot is to be fired is dry and dusty."

2181. Then again, (i) provides: "If such dry and dusty place is part of a main haulage road," and so on, "no shot shall be fired there"?—Yes.

2182. I gathered from your evidence that you were of opinion (and I quite agree with it) that watering near where the shot is fired is not sufficient probably to prevent a heavy explosion: I gathered that you were of opinion that watering in other places ought to be necessary—I mean that it ought not to be considered that the duty of watering is at an end when merely the place where the shot is fired has been watered?—No, certainly not. I am fully alive to the importance of that.

2183. And that consequently these two rules are not sufficient as watering rules. I gathered that that was your opinion, but I merely wanted to make certain of your answer?—Quite so.

2184. Now, as to the purchase of explosives, when powder or other explosives are brought from the owner by the men, that comes under the Truck Act, does it not?—Yes.

2185. And one of the provisions of the Truck Act is that they are not to pay for that powder more than the cost price of it?—Yes.

2186. Would that to some extent relieve the men from having a feeling of hardship if they were required to do it—that the owner was making no profit?—Yes: I am told that the owners have a fair claim to receive something for distributing the explosives, but I have no experience of any unreasonable charge in my district for explosives. I have never heard the men complain of being charged too much.

2187. But you think (and I should agree with you) that it would not be unfair, supposing that the cost of distributing was really an inappreciable sum, that it should be put upon the price?—Yes.

2188. Have you ever heard of any complaint on the part of the men on that score?—No, I think in the Manchester district they are fairly treated.

2189. I gathered that you were of opinion that it would be desirable both on the point of getting pure and proper explosives, and also from the point of view of making the owners properly responsible, that wherever possible the men should procure explosives from the owner?—Yes. I do not know of a single case in my district where it is otherwise, that is to say, in the Lancashire coal mining district. What is done in Ireland is such a small matter that it is outside the question.

2190. You showed us a picture on a sheet of tracing paper of a system which was brought in for the purpose of timbering roofs. Could that system be used in a good many other collieries besides the one you mentioned?—I think an approach to it could. I brought that purposely to show what has been the advantage of what may be termed "free timbering," and it is in connection with fixing the maximum distances for supports where we did not get the full advantage of that alteration in the rule because they fixed the distances too wide and too great. I put it in this way, that they would gain by having close timbering: they would have better working places, and owners themselves would have less broken timber and less falls of roof in the working places: the men would get more coal, although they would have to set more timber—they would have more time for getting coal. In point of fact I carefully got the amount of coal filled by the men working in those places, and to me it was astonishing—they filled regularly 30 wagons in those places.

2191. Yes, but the point I wanted to put to you particularly was whether that was a system adaptable only to that colliery, or whether there was a large number of other collieries where such a system as this, for instance, could be adopted?—Yes, I am sure of it.

2192. And that it would apparently have a very large influence in saving life?—Yes.

2193. Falls of roof, are, as we know, one of the greatest causes of accidents both in your district and in other districts?—Yes, more than 50 per cent.

2194. With regard to holding a further inquiry after the coroner's inquest in most cases of important accidents where the inquest is reported, there is generally such a report as this which I have in my hand, made by the counsel who has been employed, and by the inspector?—Yes.

2195. You yourself have made these reports frequently, have you not?—Yes.

2196. Does not that to a certain extent in some circumstances fulfil the place of an inquiry?—I am not certain.

2197. I do not say always and entirely, but I should like to ask you to what extent does this fulfil the purposes of an inquiry—when you have filled up any lacunæ which the coroner may have forgotten, or upon which he was wrong?—I think in many cases it has been exceedingly well done: in many cases the counsel have been able counsel, and have done their work well. But I have in my mind one or two cases where it has not been quite so. I do not wish to mention any names.

2198. No, but you refer to cases in which you would be of opinion that it would be wise to put in force the powers of Section 45, even after such a Report as the one I refer to had been issued?—I think cases have arisen where it would have been of advantage to have had further inquiry—where you want to go further than that.

2199. At all events I suppose I may take it as your opinion (I do not want to lead you) that these Parliamentary Reports which are issued are very valuable, containing, as they do, the opinions of the inspector and of the counsel: they are Reports which are published to all the world, and are very valuable supplements on coroners' inquests?—Yes.

2200. They fulfil a very useful purpose?—Yes.

2201. That is to say, in calling the attention of the public and the attention of the Home Office to the important aspect of the question?—I take it that some times coroners do not rise to the occasion, and it is desirable that they should—that is putting it in one way.

2202. Yes. I am not suggesting by my question that Section 45 is not a useful section at all. We should both agree upon that, no doubt. Now, with regard to safety apparatus, I suppose you would agree that it would be better that such apparatus—I will not go into the details as to which is best—should be kept at centres which are conveniently situated with regard

Digitized by Google

Mr. J. Gerrard.

26 July 1906

to railways, rather than at each individual mine?—Well, I do not know. Of course, the question is open to two sides. The matter was brought very clearly before me at Altoft's Colliery; there the Experimental Gallery is at the mine, and Mr. Garforth said, "I have asked my neighbours to come again and again, but they do not come, perhaps because they do not like coming to the colliery." Now the Tankersley Station is not at the mine, but it is apart from the mine near to a railway station, and they have had a number of visitors there. But, on the other hand, it seems to me that there is a good deal to be said for it being at a mine; they are associated with a mine and associated with officials, and I am quite sure that some of our large coalowners will establish stations at their own collieries, and not be satisfied with a station apart from the colliery.

2203. I quite agree that a large mine would do so, but I put this to you: of course it would be very desirable that there should be two things provided with regard to these safety apparatus; first, that they should be in first rate order?—Yes, that is absolutely necessary.

2204. And, secondly, that there should be, in connection with them, at least two or three men who understand the use of them perfectly and were thoroughly practised?—Yes.

2205. I know you take an interest in this subject, and therefore I put this to you: would it not be better to have a separate apparatus at such big collieries as you desire, but to have at convenient railway centres apparatus which could be inspected from time to time, and which would be under the charge of men who thoroughly understood it, and who could go down by train to the colliery, rather than attempt to have an apparatus at each colliery which, by disuse, and not being required for years, might not be in such good order, or might not be satisfactory by reason of the men themselves not being so skilful. You see my point?—I do. I think that the apparatus must be in order, and to be in order it must be constantly and regularly attended to, and it must not be left. Some of the Fire Queen's apparatus were left months and months, and when fire broke out and there was need for them they were absolutely out of order.

2206. That is exactly the practical point which I was asking you. Would the keeping of them in order and under the care of men who thoroughly understood them, be more practicable by having them kept at common centres ready for the use of any of the mines round about, than by attempting to get them into use generally at the small mines?—Yes; there is no probability of the small mines doing it; they will depend upon the station, such as the plan which you are now describing.

2207. You would approve of that station plan?—Yes, but I would not hinder a large colliery owner from putting a station to his own colliery.

2208. No, I do not suggest that, but your view is that for the mass of the collieries it is upon the centres that we ought to depend?—Yes.

2209. I should like your view upon this: I have been told with regard to the section of the Act which requires practical experience in a mine for persons who come to be examined for a certificate, that those words "in a mine" are frequently treated as being satisfied by the mere work of a clerk at the mine, certainly, but at the top of it?—Well, it is said to be open to a person employed on the top of the mine. I have heard it said over and over again.

2210. So that the five years' experience required by the Act might be gained by keeping books at the top of a mine?—I do not think any such person would have the least chance to sit at Manchester, because the examiners would not allow him. The examiners go through the testimonials, and they would not allow such a person to sit.

2211. But you have told us that their power of going through those testimonials and making their rules is a little doubtful. You have just told us that the power of examiners to say what would be required was rather doubtful, and that it was doubtful how far they had the power to say who should sit and who should not?—That is going beyond the Act, and is requiring a candidate to have filled an official position. But interpreting the requirements of the Act with regard to a clerk on the surface who has never been down a pit in his life having had experience of a mine, I think our examiners would be justified in refusing that.

2212. In other districts there have been cases where a considerable time spent upon the surface merely in keeping books has been allowed to pass as part of the five years. Have you heard of such cases?—I have heard it said.

2213. At all events you would condemn it?—I would. I think it is most unreasonable to think that a man should obtain a certificate who has never been down a pit, or has only rarely been down a pit, or only rarely been in a mine. It is extremely unreasonable.

2214. I entirely agree. Would it not be possible to improve the examination for mining certificates by having the examination in two parts. I put this suggestion to you: that there should be a paper part which should be the same all over England, conducted like the South Kensington examinations, in which the papers were all opened on one day, so that people could not anticipate what was going to be asked; and then, in addition to that, to have for local requirements a *viva voce* examination at which the local examiners would be able to make an examination of the local men, and make allowances for a man who was not so good at paper work. I suggest to you, would that be as good a system as that which exists at present?—No. I think our arrangement in the Manchester district, for instance, has worked uncommonly well. Take cognisance of the number in the United Kingdom who sit. I suppose you have statistics of the numbers who sit in different districts. I should think in the first and second class we have candidates approaching the number of 200—quite that.

2215. You may take it, I think, that 2,400 sit for first-class and 3,000 odd for second-class, making 5,600 all over England. I am giving you these figures so that you may be able to answer?—Yes; it is a large number to deal with at one examination. That is one observation to be made upon it.

2216. But would there be any difficulty in having the examination if the papers are sent down, as they are, from South Kensington, and all opened at the same hour and on the same day in different places?—You would still have your local requirements.

2217. I would still allow the local examination in the proposition which I put to you; a local examination, in order that the local people might be able to give some weight to persons who could not answer paper questions so well?—Then what is there in your mind that you gain by having a set of papers on mining in Lancashire, say, drawn up in London?

2218. I did not suggest that they should be drawn up in London, but I gain what I thought was one of your points?—I beg your pardon, no.

2219. Just let me finish. I gain what I thought was one of your points, namely, that the examination should be uniform all over the country, and that a man should be able to say, "I have passed a certain examination, I have passed the same as you"—on paper, at all events?—That is all on paper.

2220. Yes, I am merely asking you what you think of such a scheme?—It is part of the craze for cast-iron, inelastic, uniform conditions with which I have not the least sympathy.

2221. But it is the system of South Kensington, for instance, for all examinations for Science and Art?—I would not hold that up as a model for us in our mining examinations.

2222. I am not putting it forward as an ideal system at all; you must understand that I am not advocating it, but I ask you what you think of it?—Well, I cannot find language to express what I think of it.

2223. But do you also condemn the whole of the examinations of the City Guilds, in handicrafts, for instance, which are held in exactly the same fashion?—I would rather not speak on a subject that I know little of. I do know something of mining. I have had 40 years' experience of it, and I would prefer to speak on mining rather than handicrafts.

2224. It was for that reason, in order to get your experience, that I was asking you. I was putting to you another system which is used by two Departments, the City Guilds and South Kensington, as it was said, with success, and I asked you how you thought that

Digitized by Google

would answer with regard to mining?—Mining is not on all fours with handicrafts.

2225. Can you point out any differences?—The varying conditions of mines.

2226. Can you give me any satisfactory reason why it would be impossible to make a success of an examination paper, not drawn up in London, but drawn up fairly and impartially, for the whole kingdom, say two or three times a year, and have people sit for that?—Well, is mining in South Wales on all fours with mining in Lancashire? It is not, to my mind.

2227. Since you ask me that question, I will put it to you, is it not a fact that in mining, with the exception of certain mining terms, a large portion of the information is of such a general character that it can be well examined for in any place, and that any man ought to be expected to know it—not all, but that a large portion is of a general character?—I do not agree with you. I think it is more than "terms": I think it is more than *patois*: I think it is more than dialect: I think the practices vary, and that there is need for varying practice: the conditions are so different that to prescribe, say, the Lancashire system of working in South Wales would be wrong. To say that the system of working in South Wales should be adopted in Lancashire would be quite wrong. Here for generations, for 100 years, we have been gradually developing in Lancashire, and the South Wales methods of mining would not be applicable to seams in Lancashire, nor would the Lancashire methods of mining be applicable to South Wales. To say that we have made no progress is, I think, saying too much.

2228. No one says that you have made no progress?—But you are arguing that mining in one district is the same as in all.

2229. No, I am not arguing at all. I was going to ask you this question, whether the differences which exist in different districts would not be met by the local verbal examinations which would supplement the written one?—I do not think so.

2230. Very well, I will not carry it any further?—I know the agitation for uniformity, and I know the statements that are made with regard to the Manchester examinations.

2231. I only wish to get your views, because of course they are valuable; but I should have given more weight to them, I confess, if you could have pointed out to me a really good reason why an examination paper set by a representative central body for all the districts throughout England should not be as good as a set of individual papers. I do not want you to give me a long answer?—There are 12 mining districts—12 inspection districts: you are going to form one uniform body: you will want one representative from each of these districts: there will be a Board of 12, and they would have to draw up a limited number of questions.

2232. Perhaps they would appoint examiners who would do the whole thing?—Do you mean the Board would appoint examiners?

2233. Yes?—But I thought they were going to set one paper for the whole kingdom.

2234. True, but they need not draw up that paper themselves: they might appoint examiners to do it. Other bodies do this, just like a university?—If one Board for the whole kingdom have to delegate examiners to each district, where is the gain?

2235. I do not say to each district: two examiners for the whole kingdom: will you follow the scheme that is suggested to you, that there should be a Board for the whole kingdom, appointing examiners for the particular year—such a number as were required—there would have to be more than two, because there would be all the papers to look over?—Yes.

2236. But appointing a certain number of examiners to draw up a common paper for the whole of the kingdom, and that to be supplemented by a *viva voce* examination by the Boards?—If you divide mining into heads, one of your heads would be probably the practical working of mines. Well, you could only have a limited number of questions. You might have at the outside six questions under that head.

2237. Yes?—Are you going to consider that the local mining conditions in 12 districts are such that you could apportion them fairly in six questions? It seems to me to be difficult.

2238. Could you not at least ask six questions which would test general knowledge, allowing the local and special knowledge to be dealt with by *viva voce* examination by the local men?—If you do, the result will be such a weak certificate that no one would attach any value to it. With your idea of generality, uniformity, and so on, there would be no special value: it would have a general value, but it would be so little as to be valueless.

2239. I will only ask one further question: ought not that view logically to lead you to the conclusion that there ought to be different certificates in each separate district, and that a man who had a certificate in one place ought not to practice in another if the conditions are so very different that they cannot be examined together?—I do not carry it so far as that. I only say that to me it would not have the value, if it were wide and general, of our local examination.

(*Mr. Cunynghame.*) Thank you: I wanted to hear your opinion.

2240. (*Mr. Wm. Abraham.*) Since when has the system of fining men for breaches of rules been in vogue in your district?—I should say for 40 years: I have had experience of it for 40 years.

2241. Has any increase of those fines taken place since the amendment of the Truck Act in recent years?—I think there has been an increase, but it has been due to a desire of more strictly enforcing discipline rather than considering the Truck Act.

2242. Which of the two systems in your opinion has a greater deterrent effect upon the men against breaches of Rules, and so forth: the fining of them or taking them before a magistrate?—Unquestionably taking them before the magistrates. It is out of consideration for the men, and it is out of consideration for a respectable man who has never been haled before a police-court in his life that for an offence under the Mines Regulations Act he should not be taken there—there is something to be said on that side.

2243. I suppose the first object of the Rules is to secure discipline?—Yes.

2244. And it is to ensure the enforcing of the Act which is necessary for the protection of the mine itself and the lives of the men who are working there?—Yes.

2245. Is it not weakening the Act for that purpose if you, for the sake of a man's feelings, say, "I will fine him instead of taking him before a Court of Law"?—I entirely agree that taking him before the magistrates would have a more deterrent effect. I only submit for consideration that much has been advanced on the part of the men for a little elasticity. It is not my own view. I have given you my answer.

2246. Probably I should be on your side in that case, but I am on the side of safety?—Yes.

2247. I ask you this: I do not wish to repeat myself, but I am entitled now to believe that you yourself are of opinion that in order to secure safety the prosecution of everybody—the manager or the worker—is the most effective in order to keep the Rules unbroken?—I agree, and if it will be of any advantage to you I will go one step further. We have no system of fining managers or fining owners. We have only prosecution.

2248 Have you in your district collieries where they do not fine, but where they take the men and prosecute them?—Yes.

2249. What is the comparison between the breaches of Rules and discipline under both systems—which is the better? In which case are there the least number of breaches of Rules?—I should be better able to answer that question in another year, because there are only two cases that have come under my notice of owners taking that course; one is only a small case and the other is a large one, having five certificated managers. In that case the new agent (there has been a change in the agency) has informed this large mine that he will have no more fining, but that every breach of Rules will be prosecuted for. So that it is only just coming into operation, and I shall have an opportunity of testing that by and by.

2250. Have you personal knowledge of the nature of the offences for which the fines in this colliery have been inflicted?—I have the name of the colliery here for my own information, so that I can give you the details and full information.

Digitized by Google

Mr. J. Gerrard.

26 July 1906.

2251. I do not wish you to go into great detail, but I should like to have an answer to that question?—Have you the one headed "B" which I have handed in?

2252. Yes, that is a very large fiery mine. The first fine there is "collier damaged lamp gauze with pick, 5s. fine"; the next is a drawer losing a bow and scotch, 2s.; the next is a drawer, damage to lamp gauze, 5s. Can you explain to us how he damaged that?—No.

2253. In your opinion was it due to carelessness, or was it through want of attention, or was it done wilfully?—I think the man would not have been fined if it had not been so.

2254. It was done wilfully?—No, carelessly, not wilfully—want of care. For a pure accident the manager would not fine him.

2255. In that case, want of care, damaging the gauze of his lamp, might not that have had a most grave and serious consequence?—I think it might; one can readily conceive conditions under which it would be very serious.

2256. How many of these offences do you think have been serious offences?—On that list B there are two cases of damage to lamp; then, "Having lamp on belt," that is to say, he hooked the lamp on to his belt instead of having control of it—for that he was fined 1s. Then, "Neglecting Warwick prop"—that is on an inclined road, to secure a tub; that is necessary.

2257. Might not that neglect have led to most serious consequences?—I quite agree. He was fined 1s.

(*Mr. Ratcliffe Ellis.*) Or it might not. The circumstances in all these cases would have to be inquired into to see how far they were serious or not.

2258. (*Mr. Wm. Abraham.*) Yes, inquired into by the mine manager. In this case we have in six months 354 fines, and by the end of this year, at the same rate, there will have been 708 offences committed in this one colliery, which no one but the manager and the men themselves will know of?—I must correct you; that is the total for a large number of collieries.

(*Mr. Wm. Abraham.*) I am glad you have pointed that out.

2259. (*Mr. Ratcliffe Ellis.*) How many men are there in those collieries?—I can give you all the details.

2260. I think it should be noticed that some of those offences were not offences against the Mines Regulation Act; some were stopping away from work, and numbers of things?—Yes, stopping away from work, using filthy language, and so on.

(*Mr. Wm. Abraham.*) The witness has told us that some of these offences are serious offences; if it is only one, it is enough.

(*Mr. Ratcliffe Ellis.*) That may or may not be, according to the circumstances.

2261. (*Mr. Wm. Abraham.*) I think it is quite clear, from the opinion which you have expressed. I wanted to get this fact: at any rate, I understand that in the first six months of this year you say there have been 354 offences in your district of various characters, some of them not very serious and some which may be serious. My point is this, and you have answered it, I think, very distinctly—that, in your opinion, the greater effect in preventing these offences taking place would be gained by prosecuting these men, and not by their being allowed to be fined in the office?—Certainly.

2262. With regard to the section of the Act as to the responsibility of the owner, agent, and manager, is not the intention that you should have a greater number of men responsible for the colliery the reason that the three are named?—Yes.

2263. You answered Mr. Davis by saying that it is not obligatory that an agent should be appointed?—Yes.

2264. Does not that weaken the real intention of the Mines Act?—No. I would in many cases infinitely prefer that the owner and manager should be alone responsible, and that the manager could go direct to the owner, and that there should be no intervention and no one between them in many cases.

2265. In that case two would be better than three?—Yes. If you ask me with reference to the whole of the parties exercising supervision bearing the load and being responsible, I agree; but when you go further, and ask, "Is there an advantage in having an agent at every mine?" I am not prepared to agree.

2266. Do you think it is any advantage at all, or that it is in keeping with the intention of the Mines Regulation Act that the same man should be the agent and the manager?—I must consider that. It is done in many cases. The manager, being a far-seeing man, in some cases secures his being the agent, and prevents an interloper intervening between him and the owner, and he obtains the owner's consent to his being appointed agent as well as manager. To me there seems to be much to be said for it. As to making it universally or generally applicable, there are other conditions which would require consideration. But if I were the manager of a mine, and sought to have full control, having the full responsibility, I think I should aim at having nobody between me and the owner. I am putting it in that way because I think there may be something to be said for it.

2267. Notwithstanding that, you agree that the intention was that there should be a greater number of men responsible for good conduct and for efficiency of management at the colliery?—Yes. Of course, I did not see the bearing of it at first. Really, my answer should be that the intention of the Legislature was that those who exercise supervision should have responsibility.

2268. That is so; and in that case, there being a greater number having responsibility ought to create greater safety?—Well, not necessarily; a greater number does not necessarily mean increased weight.

2269. Take this case: there are supposed to be three responsible, the owner, who probably never goes near the colliery—still, he is the owner of the colliery?—Yes.

2270. Then there is the agent, and there is the manager?—Yes.

2271. In any case where the agent and the manager are one person, and an explosion takes place, and the manager is killed, who is responsible?—I suppose the owner.

2272. And he never goes there?—Well, you cannot help that.

2273. In that case is it not of great importance that there should be an agent as well as a manager?—If you could fix the standard of agency, then what you are seeking for you would have, and you would have something more—you would have improved supervision. But you would have to have a standard.

2274. Then, in your opinion, to make the agent's position effective he ought to have a certain amount of mining knowledge?—Competency.

2275. Yes, that is the word. You think that would improve the position of things?—Quite so.

2276. Is it advisable that the mine examiner, or the fireman, as we call him, should have a lamp, for the purpose of testing for gas, of a more sensitive character than the one in ordinary use by the workmen?—From my point of view, all the safety lamps that I know are reliable to test for gas. If you want to go into the question of lamps which will give a test with a lower percentage of gas than would be shown on the flame of a safety lamp you have to go into the Clowes Hydrogen Lamp-tester, the Stokes Alcohol Lamp-tester, or the Pieler apparatus; but I am not sure that firemen are sufficiently advanced to use those.

2277. Supposing they were sufficiently advanced, is it desirable in itself?—Do you mean is it desirable that a more sensitive test should be applied to our mines; is that the question?

2278 No, not exactly, but that the fireman in going his rounds to see that the place is safe for the men to work in should have a more sensitive lamp than the workmen themselves?—No, I do not think so. It is desirable that the examination should be limited in point of time, and that it should not be extended beyond a certain time, to be reasonable; but if each place had to be tested so minutely as to take up much time, you would prolong the period of examination.

2279. Well, I am thankful for that opinion, but that is not an answer to my question; however, it

Digitized by Google

does not matter. Then it would be very undesirable that the men should be working by a lamp which is more sensitive than the one which the fireman used?—Yes.

2280. You would condemn that?—Your difficulties are not our difficulties, Mr. Abraham, and I would prefer those who are responsible for your difficulties to deal with them.

2281. But your great practical experience is of value here. If all of us here were of the same experience it would not be of so much value, but as we know you have had such an extensive experience you will pardon my putting these questions to you?—I am willing and anxious to help you in any way I can. I only wanted to say that we had no such difficulty in Lancashire.

2282. What time would you recommend a shot-fire to take place?—It depends upon the conditions. In what I should call a fiery and dusty mine I should want to have as little of it as possible, and I should have as few men in the mine as possible.

2283. Would you make any difference in firing shots in stone drifts, and so forth, as compared with the way in which you would fire in the working face—during the shift?—In an absolute stone drift with nothing but stone work associated with the seam, yes, because some of our most fearful explosions have been caused by stone-work shots in the haulage roads, for instance—not in coal.

2284. (*Mr. Enoch Edwards.*) What you call "ripping" shots?—Yes, ripping shots.

2285. (*Mr. Wm. Abraham.*) I was coming to that. What was it that caused you to found the opinion that certain coroner's inquests were not quite as efficient as you thought they ought to have been?—I think the coroner took too restricted a view; he was not desirous of going so fully into the working of the mine as I wished.

2286. Is it not possible and probable that the same evidence as is placed before a body of impracticable men, as very often the jury at a coroner's inquest are (and they are supposed to be the best judges because of that), when placed before a few mining experts would bring about a different result and a different verdict?—Probably it would have more weight with the mining world. I cannot speak to it absolutely unless I know the facts.

2287. No, we know that; but in your opinion is it not probable that the same facts would have different results?—It may be so; I cannot say that it would be so absolutely. I do not think you could yourself.

2288. Do you know of any case in your district where Section 45 has been put in force—the second inquiry?—We have never had one in Lancashire, have we, Mr. Ellis?

(*Mr. Ratcliffe Ellis.*) We have never had one.

(*Mr. Cunynghame.*) I think the witness refers to these Reports.

2289. (*Mr. Wm. Abraham.*) No, the second inquiry?—No, we have not had a second inquiry. We have had a counsel's report on the Clifton Hall inquest; Mr. Arnold Morley made a report as counsel.

2290. Has there been a single second inquiry since the Act has come into force?—Not in Lancashire.

(*Mr. Cunynghame.*) I cannot quite give you the information at the moment, Mr. Abraham, but we will find out for you.

(*Secretary.*) There were a number in Scotland before the passing of the Fatal Accidents Inquiry Act of 1895.

(*Mr. Cunynghame.*) But not since then.

(*Secretary.*) No.

2291. (*Chairman.*) I understand the reason for that is that there was no procedure similar to a Coroner's inquest in Scotland before the passing of the Act?—That is so.

2292. Since the passing of the Act and the coroner's inquiries having taken place in Scotland, there have been no more second inquiries?—That is so.

2293. (*Mr. Ratcliffe Ellis.*) With reference to inspection by the Government inspectors, in your view is there a sufficient inspection of that character in your district to secure the necessary safety in the working of mines?—I think so.

2294. With reference to Rule 38, in the experience which you had in Yorkshire of inspections by the workmen, did you come to the conclusion that the advantage of such inspection was that it satisfied the workmen?—Yes, I certainly think it satisfied the workmen.

2295. Do you think that it adds to safety, or is it merely a provision which enables the workmen to be satisfied that the mine is satisfactorily worked?—I am sure that it gave the workmen increased confidence. With regard to the question of promoting real safety, I think it depended upon the experience and competency of the examiners—of the men selected. In some cases there were excellent men selected, and in others they were open to criticism.

2296. Yes, but what I mean is this: do you think that such inspection is necessary to secure safety or to promote safety, or is it merely that it satisfies the men that the place is safe?—It is more in the direction of confidence than absolute safety.

2297. Do you remember any of the Reports which you received?—No, it is so long ago that I would rather not go into that. You will have an opportunity of hearing others on the subject, no doubt.

2298. With reference to discipline, the object of punishing a man, whether he is an owner or a workman, I suppose is, first, to inflict some penalty upon him, and, secondly, to make an example to other people?—Both; and I should put more stress upon the publication—upon the example point—than upon the other.

2299. In connection with fines, you seem to think that the one objection, at any rate, was that the system of fining might be exercised unfairly?—It is open to that.

2300. That one man might be fined unfairly in comparison to the fine which might be imposed upon another man for the same offence?—Quite true.

2301. Do you not think that the provision in the Truck Act is sufficient to guard against that?—It depends upon the maximum amount.

2302. You see there is no maximum amount in this sense. An owner may say: "It is one of the conditions of your employment that if you commit a certain offence you shall be liable to a certain amount of fine in money"; but if the actual fine is excessive, then he is guilty of an offence against the Truck Act?—I agree.

2303. Do you not think that the provision in the Truck Act, if carried out, is sufficient to guard against that inequality of treatment which you fear?—I agree with your view that there is protection in that.

2304. There is protection given there. With reference to the first object—that is to say, the punishment of the person who is the offender—in some cases I suppose a fine of 5s. would be a consideration; it would be a considerable amount to him?—Yes; in the case of a boy, for instance.

2305. But if he was taken before the magistrates, the costs, which would fall upon somebody, would be very much in excess of that?—Distinctly.

2306. Without considering the amount of any fine at all, the costs of the proceedings would be in excess of that?—Yes, looking at it from the men's point of view.

2307. If you get the example, do you want to press it that the penalty shall be excessive?—No.

2308. Then, if you could be satisfied that there was a sufficient example made, you would not care to insist upon prosecution in each case?—No. Personally, I think there is something to be said for a little elasticity, reasonably applied.

2309. Then if the fact of a man being fined for an offence is advertised about the pit so that other people see it, do you think that would secure sufficient publicity?—I think it would go some distance in that direction.

2310. Again, there are bye-laws at collieries for the violation of which, directly, you could not bring a man before the magistrates?—Yes.

2311. In such a case as that they could not prosecute. Then how would you suggest that the breaches of the bye-laws should be dealt with? Are there not only two ways—one, that of discharging the man alto-

Digitized by Google

Mr. J. Gerrard.

26 July 1906.

gether, and the other of putting a reasonable penalty upon him? Would you advocate his discharge?—That I did not allude to. It is an undoubted fact that some managers neither prosecute nor fine, but discharge in every case.

2312. You would not recommend that as a desirable substitute?—No; but if the man gets work immediately he does not suffer any penalty, nor, on the other hand, is there any publication of the offence.

2313. Does it not come to this—that you really must leave to the manager a discretion as to the way in which he can best maintain discipline?—I agree; but I think there is also something to be said for protecting; there should be some protection.

2314. Protection to whom?—If the Truck Act does not give you sufficient, then something should be done in that direction.

2315. But protection to whom?—To the worker.

2316. That is to say, against being oppressed?—Against being oppressed.

2317. I have mentioned the Truck Act as being specially designed for this purpose; it is not a law from an antique sheath, but the reason of the Act and the special design of the Legislature was to prevent injustice of that sort. Do you not think it is sufficient?—I am satisfied with it. There is only one point, so far as I know—that is as to what may be a serious offence, such as breaking a lamp gauze, which depends upon the conditions—the circumstances should be reviewed.

2318. Yes, that is what I want to point out to you—that any one of those cases might be in the circumstances trivial, although in the description of them they may appear to be serious?—Yes.

2319. That question would have been considered by the manager?—Yes.

2320. You would not deprive the manager of that right, would you, by some cast-iron regulation which provided that in all cases he should bring the man before the magistrates?—I say that I think if the state of things with regard to that was altered, and there was such a system provided, there would be a considerable outcry on the part of the men.

2321. Do you think that it would not be conducive to safety?—I cannot say that it would not be conducive to safety. The lists which I have handed in were from 20 mines—that is to say, the total number of fines are from 20 mines.

2322. With reference to inspection, you are satisfied with the inspection before the shift which is provided for in the Act of Parliament, but you think there should be two inspections during the shift?—Yes.

2323. Have you any feeling that all three inspections should be made by the same men?—No, it is impracticable.

2324. That is a suggestion which was made with regard to South Wales, but you do not think it is practicable?—No.

2325. Is it your opinion that it would be well to have the results of the second visit reported in writing? May I put it to you that many of these men who are very good at making inspections are not very good at making written reports?—That was the case some years ago, but I do not think it is so much so now.

2326. You think it would be well to have the second inspection reported in writing?—Yes; I am bound to say I fail to see why it should not be.

2327. Very well; that is your view. In reference to the agent, you think the agent should be a man holding a certificate?—I do not think I said so, but in answer to some question I may have said that I think the efficiency of an agent would be greater if he was competent. My point is that if there is any amendment of the Act it might be made clearer with regard to the appointment of an agent.

2328. First of all, would you say that the owner should be obliged to appoint an agent?—I have no wish to do that.

2329. Then would you say that the owner should be limited in the choice of the person that he made his agent?—Well, I think I have pointed out that it is unreasonable that he should appoint a weighing-machine clerk, for instance.

2330. Take the case of a limited company; a limited company is no person at all—it has neither a soul to be saved nor a body to be kicked; the appointment of agent is in favour of safety because it gives you another responsible person, who could be sent to prison in cases where he deserves it?—I quite agree.

2331. That you cannot do in the case of a limited company?—I agree.

2332. The words in the Act—that the agent, if appointed, is superior to the manager—would prevent the agent escaping responsibility on the ground that it was the manager's negligence, and not his. Is that not so?—I quite agree.

2333. Therefore, there is an advantage in having those words in the Act; the agent is standing in the place of the owner, and is responsible, and is liable to be sent to prison?—Yes, it is an unfortunate position.

2334. I want to see what alteration you would suggest should be made in the Act. Now, take the case of a lady being the proprietress of a colliery—we have certainly one instance of that in Lancashire—who is supposed to take no responsibility whatever; she appoints an agent, and the agent may be liable to be sent to prison. The lady has nothing whatever to do with the management, but she appoints an agent, who is responsible. Is not the fact of the penalty being upon the agent sufficient to secure that the agent would do, at any rate, whatever he could do within his duty in the direction of insuring safety to the persons in the mine?—I know of persons who are absolutely incompetent, who have taken up that position of responsibility in spite of that liability to go to prison.

2335. But I am afraid you cannot have an Act of Parliament to cover every particular case; the case you have mentioned is the case of a very foolish man?—Yes, it is the case of a man who takes upon himself the position of responsible agent, and communicates with me as responsible agent. There are men who take that position, and have that liability hanging over them. I am opening up the point of view from the other side in that observation.

2336. But the liability to go to prison is, I should think, common to all agents, whoever they may be; and I do not know that any man, even if he is in the position of a clerk, would feel any greater satisfaction in the liability to go to prison than if he is manager. What alteration do you think can be made in this Act of Parliament with reference to the appointment of agents?—It seems to me to be desirable that the agent should be competent. How to arrive at that in other words than general words—"a competent agent"—I do not know.

2337. But he is not the manager responsible for the working of the mine, although he is responsible under the Act of Parliament. He may be the commercial manager; he is nominated by the owner to stand in his shoes?—Well, one may point out a weakness without being able at the moment to supply the remedy, and that is my position.

2338. Now, with reference to General Rule 1, I understand that you would let the rule stand as it is at the present time. Am I right in that?—Yes.

2339. But that you would define that in a fiery mine the test of inadequacy of ventilation should be the finding of a cap on the lamp in the air-current?—Yes.

2340. With reference to the mines that are not fiery, the Rule is good enough as it is?—Yes.

2341. Upon the question of watering you have been referred, first of all, to General Rule 12 (h) in the Act of 1887. You will notice that the wording there, as Mr. Cunynghame has pointed out, is: "If the place where a shot is to be fired is dry and dusty." That is quite true; but when you look at Sub-section 1 of that Clause (h), it says that if that is the state of things the place and all contiguous accessible places within a radius of 20 yards will have to be watered?—Yes.

2342. So that it is not merely the watering of a place, but it is the watering of a place and 20 yards around it?—Yes.

Digitized by Google

2342*. In the Explosives Order under the Act of 1896 you will see it is provided: "Whereas by Section 6 of the Coal Mines Regulation Act, 1896, it is enacted that a Secretary of State, on being satisfied that any explosive is, or is likely to become, dangerous, may by Order prohibit the use thereof in any mine or in any class of mines, either absolutely or subject to conditions; I hereby, in pursuance of the power conferred on me by the aforesaid Section, make the following Order:—(1) In all coal mines in which inflammable gas has been found within the previous three months in such quantity as to be indicative of danger, the use of any explosive, other than a permitted explosive as hereinafter defined, is absolutely prohibited in the seam or seams in which the gas has been found." That is to say, wherever that condition exists—that is, where inflammable gas has been found within the previous three months—no explosive except a permitted explosive is to be used?—Yes.

2343. Then the next provision is: "(2) In all coal mines which are not naturally wet throughout, the use of any explosive, other than a permitted explosive as hereinafter defined, is absolutely prohibited in all roads and in every dry and dusty part of the mine." That is without reference to gas at all, you see?—Yes.

2344. That is to say, you can use nothing but a permitted explosive in any mine which is not naturally wet throughout, and the use of any other than a permitted explosive is absolutely prohibited in all roads in every dry and dusty part of the mine?—Yes.

2345. If you look at the amendment of the Coal Mines Regulation Act, 1896, you find that express power is given by Section 1: "The power to propose, amend, and modify Special Rules for a mine under the Coal Mines Regulation Act, 1887 (in this Act referred to as the principal Act), shall include powers with respect to any of the following matters." Then Sub-section (d) of that clause provides: "The watering or efficient damping of the mine or any ways or places therein"?—Yes.

2346. You see the first two, it is true, apply to shot-firing—that is to say, the provisions of General Rule 12, and the provisions of the Explosives Order; but in the Act of 1896 there is a power given to establish Special Rules for the watering or efficient damping of the mine or any ways or places therein?—Yes.

2347. Now, what more do you want?—I take it we want some application of this Sub-section (d) of the first Section.

2348. That is to say, you want a special rule established?—I cannot answer as to that. Clearly the power is there.

2349. That is what I want to know. The power is all there, and it only wants exercising. You agree with that?—I agree that it wants exercising.

2350. You agree that the power is there, too. Whose fault is it that it is not exercised?—There is much to be said for the ventilation of a subject before putting that into operation.

2351. Then whose fault is it that it is not exercised—not the coalowners', at any rate?—Well, you are ably representing them.

2352. That is not our fault, is it?—No.

2353. Now, with reference to shot-firing, is the practice general in your district that the shots should be fired by an official?—Yes.

2354. And not by the men?—No.

2355. In some places, not so much in your district, but in some districts the men are allowed to fire their own shots?—Yes.

2356. Is it general that shot-firing should be between the shifts?—It is practised, but not so largely as perhaps is desirable.

2357. If shot-firing is done between the shifts, would the men have the charge of any explosives at all?—They would not.

2358. But the explosives would be in the hands of the official, the shot-firer?—Yes, and there is much to be said for it.

2359. That is the safer plan. There is this disadvantage about that, is there not—that if the mine is of such a character that the collier can prepare his shot early in the day, for instance, unless he got the shot fired he would have nothing to do for the rest of the day, whereas, if he could get his shot fired and get his coal down, he would have the benefit of that day's labour? In cases like that it would be hard, would it not, that the collier should be deprived of the right to fire his shot?—That is so. That is one of the difficulties of legislating for mines.

2360. You would not in cases of that sort prohibit the collier firing his shot?—No; I think it should be considered.

2361. In such cases as that a collier necessarily has charge of the explosive himself?—It must be so.

2362. If he buys the explosive from the employer, that is a guarantee that it is right and good?—It ought to be.

2363. And, so far as you know, it is satisfactory?—Yes.

2364. Therefore would you have any suggestion to make upon the question of shot-firing other than that the explosives should be purchased from the employer?—No. I think our system works well.

2365. With reference to missed shots, the Rule in Lancashire that we have established is satisfactory, you think?—Yes.

2366. Will you explain what is the danger of a missed shot, unless there is a Rule of that sort?—The danger lies in the method of recovering the detonator. Prior to the formation of that Rule many accidents occurred by reason of the men using the pick to get out the detonator, either from the coal not brought down by the shot, or from the coal lying on the floor which was brought down by the shot, and firing the detonator in that.

2367. That is to say, that a collier might fire the detonator with his pick in getting the coal, and, of course, mischief would happen?—Yes.

2368. Or the detonator might go, as it has done in some cases, into a household fire, and cause an explosion there?—That is so. That is by reason of the non-recovery of it.

2369. So that you think the Lancashire Rule is sufficient?—I do.

2370. Do you think that is a Rule which might be made a General Rule to apply to all cases of missed shots?—I think so. It works well with us, and I do not know why it should not work generally.

2371. That is one of the Rules which might be made a General Rule?—Yes.

2372. With reference to timbering, the instance which you gave where systematic timbering worked very well is under the present Regulation?—Yes.

2373. It is not an advance on the present Regulation at all; it is an application of the present Regulation of a very satisfactory kind?—That is so.

2374. But then do you wish to add anything to the Regulation?—No, I think it is working admirably now.

2375. The Lancashire Rules as to timbering are general now, I believe, throughout the kingdom?—Yes, but not quite uniform.

2376. At any rate, we will take the case of Lancashire; you think that the Rule which is in force there as to timbering is satisfactory, and you have nothing to suggest with regard to adding to that?—No.

2377. There was a suggestion made by Mr. Hall that the manager should submit to the inspector for his approval the Rules which he would formulate under the timbering arrangements as to the position and the distances which the props should be put from the face, and from each other. Do you approve of that?—I think it is very desirable to have a Rule.

2378. Would you care to take the responsibility of criticising that?—No, I should take the responsibility of objecting if I am not satisfied.

2379. Would it be a practicable arrangement to do that?—I do not see any difficulty. In my district at present it would only apply to new mines or to any alteration of the existing mines. I think I am fairly well satisfied with the distances now established.

2380. You are satisfied with the state of things as it is in your district?—Yes. I should not object to that proposal; there is something to be said for it.

2381. With regard to haulage accidents, do you suggest that on some of the roads the haulage might be discontinued whilst the men were going in and out?—Yes.

Digitized by Google

Mr. J. Gerrard.

26 July 1903.

2382. That would meet your views?—Yes.

2383. So that if the haulage were discontinued while the men were going in and out, it would go a long way to meet your views in that direction?—Yes; there is only one point to mention, which is that now we are getting further and further underground, the distance is extending and the work is done under very laborious conditions, so that riding on inclined roads is more and more recognised; there are special trains for the men to ride in. Such a provision should not prohibit riding under those conditions.

2384. I suppose the men do not ride except where the road is sufficient?—That is so.

2385. Now, upon the question of Special Rules, your suggestion, as I understand, is that where you are opening a new pit, you may adopt the Special Rules in force at the rest of the colliery?—Certainly, the moment they start.

2386. Without having to go through a special establishment of Rules?—Quite so.

2387. With reference to the system of establishment of any new Special Rules, you have been referred to the Factory Act. You may take it from me, if you have not the Factory Act before you, that under that Act it is the Secretary of State who initiates the Rules. You see that under Section 79, where the Secretary of State is of opinion that it is a dangerous trade, he has power to establish in a certain way Special Rules for that trade?—That is so. I have just read the Section.

2388. Then anybody interested may object to this Rule, and the Home Office may decide whether the person who objects has a right to object?—Yes.

2389. And they may decide whether the objection is worth considering?—Yes.

2390. If they decide in the negative in both cases then the man who has to be bound by these Rules has nothing to do but to carry them out?—As I read it, it merely provides for inquiry.

2391. It does not even provide for inquiry up to that point, you see; but if the Secretary of State is of opinion that the person objecting has a right to object, and that his objection is worth consideration, he may if he chooses appoint an inquiry?—Yes.

2392. At that inquiry the matter is considered, and a report is made to the Secretary of State; then, as I read the Section, he may or may not adopt that, and if the Rules, as modified by this inquiry or as the Home Secretary may think right, are laid on the Table of the House of Commons for 40 days, and if there is no objection to them, they become law?—Yes, that is the provision of the Act.

2393. Do you know what chance there would be of getting any discussion of Rules laid on the table of the House of Commons in that way, you do not know that?—No, I cannot answer that.

2394. That is the factory system. Now if you look at the Coal Mines Regulation Act you will find that under Section 52 the obligation is put not on the Secretary of State to make the Rules, but upon the owner, agent, or manager of the mine?—Yes.

2395. "The owner, agent, or manager of every mine shall frame and transmit to the inspector of the district, for approval by a Secretary of State, special rules for the mine within three months after the commencement of this Act, or three months after the commencement (if subsequent to the commencement of this Act), of any working for the purpose of opening a new mine or of renewing the working of an old mine." So that the first difference is that in the case of the Factory Act the Secretary of State is the person to make the Rules or to suggest them generally?—Yes.

2396. Under the Mines Regulation Act that onus is put upon the owner, agent or manager of the mine?—Yes.

2397. Do you agree with me that you cannot alter the provisions of the Act of Parliament or of the General Rules by a Special Rule?—I do not think it is open to that.

2398. Then you do agree with me that all you can do by Special Rules is to define the method by which the Act and General Rules are to be carried out. If you will refer to Section 51, it provides: "There shall be established in every mine such rules (referred to in this Act as Special Rules) for the conduct and guidance of the persons acting in the management of such mine." There is no right to alter the Act of Parliament or the General Rules, but the Special Rules have to be established "for the conduct and guidance of the persons acting in the management of such mine or employed in or about the mine, as, under the particular state and circumstances of such mine, may appear best calculated to prevent dangerous accidents, and to provide for the safety, convenience, and proper discipline of the persons employed in or about the mine." That is the object, and the owner, agent, or manager is the person whose duty it is to suggest them. Now, the owner, agent, or manager are the persons who are responsible for breaches of the Act and of the General Rules?—Yes.

2399. And the responsibility is a very serious one. Do you not think there is a very great difference between the Special Rules and the object of the Special Rules under this Act and under the Factory Act?—Yes, obviously.

2400. Inasmuch as the owner, agent, or manager is the responsible person, and these Rules have to be prescribed by him to secure the carrying out of the Act of Parliament, is it a reasonable thing that if the Home Office and the owner, agent, or manager take a different view upon this, they should have an opportunity of going to arbitration for the purpose of seeing who is right?—I imagine that it would be agreed to were it not for the unfortunate failure of arbitrations, especially in the South Wales case.

2401. But why did it fail?—Well, I am not a competent person to give an opinion. I hold strongly that in some way or other it is a distinct advantage to have the influence of the representatives of the men in framing these Rules.

2402. I should like to ask you some questions about the men presently; but why did the arbitration fail?—It was very cumbrous, very costly, and very objectionable, at any rate.

2403. But with regard to all questions of mines, as no one knows better than you, there is room for great differences of opinion upon a multitude of questions?—There is—the conditions vary so.

2404. The Home Office are not responsible—there is no sending the Home Office to prison, but the person who may have to go to prison is the owner, agent, or manager of the mine. The reason I want to press you with regard to it is this—that that difference of opinion should be settled by an arbitration, in which the whole question might be discussed, and in which one of the judges, at any rate, may be a person appointed by the coalowner who is chiefly interested in the question?—Yes; I think with a little expansion it would be satisfactory; you need not go so far as to say that the Secretary of State should draw up the regulations.

2405. I know. But what I am asking you is, can you suggest any fairer method of getting such questions decided than that which is provided for in the Act of Parliament, considering all the circumstances—namely, arbitration?—The case arises on a distinct failure—a breakdown of this power which you are advocating—namely, the arbitration in South Wales. Now it is proposed to go to the other extreme, and to give to the Secretary of State arbitrary power to propose Rules which may press very hardly not only upon owners but upon the men.

2406. But I am not sure that the system has broken down in South Wales. Because one side loses at an arbitration, you do not call that a breakdown of arbitration?—Well, look at the length of time occupied, and look at the cost of proceedings, and what was the result?

2407. But that may be necessary. It is a very important question.

(*Mr. F. L. Davis.*) The proposed alterations might have been unfair, and that is why they failed?—Well, that may be so.

2407*. (*Mr. Ratcliffe Ellis.*) It may be that the suggestions put forward may be unfair, may it not, and that may be the reason why they failed?—It may be so; I am not fully competent to give an opinion upon that.

2408. Your view is this—that because in a South Wales case there was a difficulty in getting some de-

Digitized by Google

cision, arbitration should be abrogated?—That has proved the necessity for some alteration, I think.

2409. But you have not any alteration in your mind?—No.

2410. With reference to the men, you think that the men should have a voice in it?—I should like them to have.

2411. Has it been your experience in Lancashire that whenever we have attempted to establish any Special Rules the men at the very beginning have always been invited to enter into consultation in considering them?—Yes.

2412. Do you think that they ought to have any further voice than this—that when those Rules are published, supposing the owners suggest Special Rules, or the Home Secretary suggests them, any representation that it is thought desirable to make should be made to the Home Office by the men, and that the Home Office should represent them and put forward their views?—I think it is desirable.

2413. And you think that is sufficient?—Yes.

2414. Now in reference to the subject of coroners' inquests, the object that you have in view is that the facts connected with the explosion or the accident should be brought out?—Yes, and the working of the mine.

2415. But then it is not very material as to what the decision is?—No.

2416. If a coroner's jury came to a conclusion that the manager was not responsible, and if you got the facts out, the verdict would be immaterial, because you could prosecute the manager, whatever the coroner's jury might say?—Certainly.

2417. Therefore, what is required in these inquiries is not the decision either one way or the other, but it is that the facts should come out?—Quite so.

2418. And if the facts are brought out sufficiently at the coroner's inquiry you do not need any other inquiry?—Yes; that it should not be limited merely to the cause of death.

2419. If, on the other hand, the facts do not come out sufficiently before the coroner's jury, then this provision in the Act of Parliament is quite sufficient to get out all the facts?—Yes, and it ought to be used.

2420. There is nothing further that you wish to suggest upon that?—No.

2421. With regard to the question of experience in foreign mines and examinations, I will not go into the examinations, but you think the system of examination in your district in Lancashire is satisfactory?—I am sure of it.

2422. Are there not these two difficulties in admitting foreign experience—first of all, that the experience should be in some foreign country as to which someone in this country knows that it is satisfactory?—Yes.

2423. That is the first point?—Yes.

2424. Secondly, that there should be some guarantee that that experience has been enjoyed by the man, and that he has really had that experience?—Yes.

2425. At the present time, in this country, if a false certificate is made as to a man's experience, he can be prosecuted under the Act?—Yes.

2426. The only remedy that you would have if you took foreign experience into account, and there was a false certificate produced, would be to prosecute the man who brought the certificate here—you could not get at the person who gave him the certificate?—No, you would have to prosecute the candidate.

2427. That question of false certificate would have to be carefully guarded against. In connection with the question of plans, you know that the Surveyors' Institution examination goes into a great deal more than the subject of plans?—Yes.

2428. Therefore, you would not say that a person should not be allowed to make plans at a colliery unless he had passed the Surveyors' Institution examination?—No. What I think I said, or what I intended to say, was that I would accept as an indication of competency the certificate of examination of that institution.

2429. You could not have anything better, but you would not require so much as that?—That is so.

2430. Would it not be better that there should be a preparation of plans made by a competent person?—Yes, I think that would be better.

2431. And if you had plans prepared by a competent person, that would be all you would require?—Yes, that is so.

2432. (*Mr. Enoch Edwards.*) I should like to ask you a few questions with regard to this list of fines which you have handed in, if you do not mind?—Yes, I brought it for the very purpose of explaining it.

2433. First of all, how long has this system of fining men by this method been in vogue in Lancashire?—They fined them in 1864.

2434. Has there been any growth in the system since then?—I honestly think that within the last few years (as indeed we should all admit) there has been an increased desire to prevent accidents, especially accidents from falls of roof, and I think there has been an increase in the imposition of fines during these last few years.

2435. Of course, 1864 was before the Truck Act relating to fines was passed?—Yes, I only give that as a date; the men were fined then.

2436. I understood you to express yourself as being rather averse to this as a principle, and that you think there might be some feeling in the matter at the collieries?—Personally, I think it is distinctly better to prosecute, but to have a hard and fast line, and to say that there should be no fining, I say, would be very hard in some cases.

2437. Who usually reports a man for an offence at a colliery?—I think generally the fireman.

2438. The fireman lives among the men in the village?—Yes.

2439. And the children quarrel about their hens and dogs sometimes?—Very likely.

2440. You know that there is feeling between those officials and the men sometimes—it is possible?—Yes, I think with regard to the managers, I touched upon that question.

2441. But it would be more so in the case of a fireman?—Yes.

2442. That is to say, he is likely to be influenced in regard to such fines. Do you not think that it is not likely that he would pursue them in that way if he had to prove his case before the magistrate?—He would not have any chance—I mean, beyond reporting he goes no further.

2443. But he is the person who reports largely in the case of fines such as you have in this list?—Yes.

2444. Of course, there are many of these fines which have nothing at all to do with the question of safety?—I agree.

2445. It is a general system?—I have brought a list of the whole of them to lay before you, and to show to what extent fining is carried out at these mines—for what offences, the amounts of fines, and to what extent.

2446. Many of these fines would be in respect of questions of contract and of discipline?—Yes.

2447. And they would have nothing at all to do with the question of accidents in the mine, or with the safety of the mine?—Quite so. May I say that I think the fines in that list, having carefully gone through it, are not numerous in view of the large number of persons employed. If I gave you the number of persons at both places you would see there are not very many fines in proportion. Although such a total appears to be large, many of them are very slight offences, and slight fines.

2448. In cases where you have this system in vogue there seem to be three courses open to the manager; he may take a man to the court, he may fine him, or he may discharge him?—Yes.

2449. Of course, if he discharged him without notice the man would have an opportunity of proving as to whether he was properly discharged?—Quite so.

2450. Mr. Ellis has put to you that you have bye-laws in Lancashire on which you fine men?—Yes, they used to publish them with the Rules, but I think that system was stopped. So that you will not find them printed there. There are bye-laws.

2451. The Special Rules are supposed to be in harmony with the general law?—Yes.

Digitized by Google

Mr. J. Gerrard.

26 July 1906.

2452. You have been good enough to state that the representatives of the workmen have been called in to discuss the General Rules with you?—Yes.

2453. Seeing that the Rules are passed for the governing of the men, and that they so largely concern a great number of men, if you make Special Rules it is only proper that someone representing the men should be present?—I agree.

2454. Then how about the bye-laws? The bye-laws would contain powers with regard to fining men; what redress have the men, and what chance have they of protesting in Lancashire?—I do not know that I take cognisance of bye-laws. I know it has been a very difficult subject. They used to be attached to copies of the Special Rules, and I objected to that; I said that they had no right to be put with the Special Rules, and that they had nothing to do with the Act or with the Special Rules; so that they have been taken out, and they are not attached to them now. Therefore, I really do not know much about the bye-laws.

2455. Mr. Ellis has made a statement with regard to a man signing—that is to say, that it was open to the man to make an agreement, or an agreement was made with him, that he would pay a fine in preference to going to court?—Yes.

2456. I suppose he would be likely to do that if the only alternative he had was that he had to leave the colliery?—If it was a good place, he would.

2457. I mean, it would be rather interfering with his ordinary liberty to take a man to the colliery office and say, "You must pay the fine or we will discharge you." It is a very serious alternative to him—his employment hangs upon it?—I quite agree.

2458. After all, do you not think that it would be a healthier and better state of things that if a man has seriously violated the Rules made for the safety of the colliery he should be taken before the Court?—Well, I cannot go further. If you will inquire, you will have the opportunity of ascertaining whether your view is correct. I am sure if you inquire you will find that considerable objections have been raised by the men to the hard-and-fast line of prosecuting.

2459. I may say that I have had 30 or 40 years experience in the district, and I never knew of such a condition of things as this where there was such a number of fines inflicted at a colliery. I have known collieries managed without taking men to court or fining them?—Yes, we have many. You will see in that list a very large mine which has only had one in six months. I could bring some before you that have not had one.

2460. I can quite believe that some managers impose considerably more fines at their collieries than others?—Yes.

2461. I will not pursue that further. I wish to ask you a question about timbering. We have heard lately about the Courrières Mine, which has been held up as an example to us for its systematic timbering. Has a special system of timbering been adopted in this country in consequence of that report?—I should not think so.

2462. We have had Special Rules dealing with what is called systematic timbering in many districts in the country?—Yes, I agree—systematic timbering.

2463. You mentioned a case, and I wish to be quite sure that I understood you quite correctly. It was an interesting case of a mine of great antiquity in which you say they followed the same system of timbering for 50 years?—Yes.

2464. So that it was not necessary to go to the Courrières Mine to find out such a system of timbering?—No.

2465. Therefore, in that seam and under those conditions it acts admirably?—Yes.

2466. You are not prepared to say that it would act similarly well all over Lancashire?—No, but I should like to see it tried.

2467. I want to ask you a question about another matter. Mr. Abraham was putting some questions to you rather upon the grounds of your experience, and I will ask you to take it that my object in putting my question is upon those grounds. I am not sure that inspectors are brought here especially to detail their experience of a particular district. Some questions have been asked you with regard to inquiries at coroners' inquests?—Yes.

2468. Mr. Ellis has drawn your attention to the first General Rule, which provides that there shall be sufficient adequate ventilation to render gas harmless?—Yes.

2469. Of course if that was always in existence there would be no fear or not much fear of an explosion of gas, would there?—Except from a sudden inburst.

2470. As an Inspector of Mines, if you had in your district a colliery worked by candles, in which colliery gas was given off, you would think it your business to insist upon lamps being used?—I should—I should not let a day go by under that state of things.

2471. If it was brought to your knowledge that men had been burned, their whiskers, their hair, and their arms singed repeatedly, would you consider it a case in which a Rule should be applied to stop that pit working until lamps had been put in?—I should give the owner of that pit notice at once.

2472. If such a state of things had been going on for three or four years, and you had an explosion which blew up the pit and you lost eighteen or twenty lives, and it was found at the enquiry that both workmen and owners were bitterly opposed to lamps, what would you say? We suggest that Juries in those localities, having similar views, are not the best tribunals to try cases of that sort. Having such a case before you, would you consider that was a proper case in which to hold a special enquiry?—Yes. Fortunately I have never had but one experience of that kind, and that was at Stoneclough. In that case, on the morning on which they put in lamps, out of continuing obstinacy the man introduced them unlocked; he would not have them locked, out of sheer obstinacy, and on that very day an explosion occurred, and there were, I think, five lives lost.

2473. (*Mr. Cunynghame*). Whose obstinacy was that?—The agent's.

2474. (*Mr. Enoch Edwards*). He opposed the lamps being there, and then he put them in unlocked when he put them in?—The first day he put them in unlocked. I gave that man notice—I should not even refer such a matter to the Secretary of State—I should write at once.

2475. You think, and I think we agree with you, that as a matter of discipline it is necessary that the men who destroy their lamps, or in other ways endanger the lives of others, should be taken before the Court and that they should be prosecuted?—Yes.

2476. What, in your judgment, would be a proper thing to do in the case of a manager who disregarded that advice and in consequence lost nineteen lives? You fine a workman for offences, and it is held to be a proper thing; you fine him 10s., 20s., or 40s., for an offence in cases in which there are no lives lost, and where it may have been an error of judgment, or a mistake, or oversight, or even neglect. If that is a correct thing to do in that case, what would you do with a manager who refused to put in the lamps until he lost 19 men?—I do not know. I am afraid the punishment would be inadequate. I have tried to show that if I had such an owner to contend with I should give him notice to put in lamps at once. If he did not do so, then I suppose we should go to arbitration and have the matter fought out. But if an accident occurred and there was life lost, and it was proved that the need for lamps had been shown, I think a prosecution should follow. Is that the answer you wish?

2477. Yes; but, of course, prosecutions have not followed. That is why one is rather anxious to know whether you inspectors have power to prevent such a state of things. I mean to say, if an inspector writes to a manager and orders him to put in lamps and he does not do so, and the inspector writes again and sees him, and the manager does not do it, and an assistant sees him and still he does not do it, has the inspector in such a case sufficient power now under the law to prevent that mine going on?—We have full power to write to the owner giving him notice under the Act. If he did not respond to that request, and if he did not accede to that notice, then we should have to report to the Secretary of State, and it would be a matter for arbitration then. I take it there is no offence in not carrying out the notice of the inspector; the matter would have to go to arbitration to compel the use of lamps. But if an accident occurred and loss of life accompanied it, and

Digitized by Google

it were shown that the need for lamps had been proved prior to the accident, I think proceedings ought to be taken.

2478. Then the case which you referred to, or which Mr. Ellis was referring to, which broke down, would not be a case of enforcing the use of lamps?—Do you mean the South Wales case?

2479. Yes?—It was an arbitration as to Special Timbering Rules, I think—a large number of them.

(*Mr. F. L. Davis.*) Yes, Mr. Ellis was speaking about Special Rules.

2480. (*Mr. Enoch Edwards.*) You do not think an arbitration case would be likely to break down where it was a question of putting in lamps?—No. We had one case which went on for years, and that was an arbitration which succeeded.

2481. (*Mr. F. L. Davis.*) You said, I think, in opening, that you did not see any need for electrical knowledge on the part of the new inspectors who are coming on?—I did not intend to make that statement.

2482. (*Chairman.*) I think what you said was that you were satisfied with the present state of things—that is as regards your assistants.

2483. (*Mr. F. L. Davis.*) I understood you to say that when there was any difficulty upon any question of electricity Mr. Ram came down and enquired into it very fully, and that you did not see any necessity for making it a condition that the assistant inspectors should have thorough electrical knowledge?—Then I am afraid I have been misunderstood. What I intended to say was that there was no need for the appointment of an Electrical Inspector of Mines. That is another matter.

2484. You do think now, do you not, that with the more general use of electricity it is advisable that the young men who are coming on as inspectors now should have a thorough electrical knowledge?—Exactly.

2485. Of course I do not suggest anything of that kind with regard to the present inspectors?—I quite agree.

2486. But that inspectors should have that knowledge in future?—Yes, in future appointments.

2487. I put it in this way: Do you not think it is likely that many an owner is hampered in regard to introducing electricity into his mines sometimes by the fact some of the assistant inspectors know nothing whatever about electricity, and that they are much more afraid of a thing which they do not know anything at all about than people who do know something about it? Can you see that that would be possibly the case?—I agree.

2488. As to the subject of discipline and supervision, you have been asked several questions. Am I right in understanding you to say that the best plan would be to prosecute for every offence?—I was asked which was the greatest deterring system.

2489. And you say prosecution?—Well, it is obvious, having regard to the loss of time involved in the hearing, the costs being greater, and so on.

2490. And you also say that the great difficulty is that it is not practicable to put that into force in every single case?—Well, I think that there is much to be said in favour of a little elasticity if you can give protection.

2491. Am I right in the note which I have made of what you said in speaking about watering, that sprays had failed, and then you went on to deal with other systems; am I right in taking it that you said you could not decide in your own mind at the present time whether the time was ripe for legislation ordering general watering?—No. That has been the difficulty, but I think now if it is not absolutely all right, owners are of themselves moving so freely that there would be a chance of the matter being put right.

2492. That is so; and I think we have heard from other Inspectors that watering is done more in Wales than it is in any other part of the country?—I agree.

2493. Afterwards you spoke about the assertion by many mining engineers that systematic watering induces lifting of the floors?—Yes.

2494. I understand in your district you have practically no watering?—Very little: it is only coming on now.

2495 So that you personally have no experience as to whether that is so or whether it is not?—I ought to say that there has been a good deal of perfunctory watering from water tubs. The water-spraying system was tried at a number of places, and there would have been some effect to be seen on the floor from that watering; but we certainly want something more than that, and I am not prepared to say how far full watering may meet this difficulty, until we have actually proved it.

2496. I am not quite sure whether I was correct in this: Mr. Cunynghame asked you a question upon that example of excellent timbering which you have given us to-day, with very short spaces between the posts?—Yes.

2497. I understood from you that although you think that is very advisable, you would not say that that system ought to be adopted generally all over the country?—No; I thought it was well worth bringing before this Commission, in order to make known the system and the effect which had followed upon it—the absence from fatalities during a long period.

2498. But owing to the different conditions in the different districts, I understood you to say you would not go so far as to suggest that the same system should be adopted everywhere?—No.

2499. Now as to the question of haulage accidents: you said that in some mines there were special travelling roads which are not haulage roads?—Yes.

2500. And you thought that those might be multiplied in the different mines?—Yes.

2501. You think that that would be an advantage?—Yes

2502. But do you suggest that in mines where there are no travelling roads they should be made specially for this purpose—because that would be a very serious matter?—I think one question which was asked me was with regard to the stopping of the haulage whilst persons travelled.

2503. Yes, Mr. Ellis asked you about that?—Of course that would meet it. The provision of separate travelling roads or the stoppage of haulage would give safety.

2504. (*Chairman.*) Or widening existing haulage roads, I suppose?—Yes, but widening existing haulage roads does not meet the danger of run-aways—wagons breaking loose and running away. I think Mr. Davis will follow me that there is some danger of that.

2505. (*Mr. F. L. Davis.*) Yes, I understand. As to safety-catches I think you said that nearly all the guides in your district were wooden guides?—I did not intend to say that, but in every case where there are these safety-catches to provide for ropes breaking they are wooden guides; that is what I intended to say. There are safety-catches to cages in fifty-four pits in my district.

2506. I think you said that possibly the wooden guides have been retained for the very reason that safety-catches could be used on them?—I think at a number of pits that is so.

2507 There are a very few mines in Wales at the present time in which they use wooden guides; we have thought that rope guides were rather more up to-date. But I think you said you were not able to say at the present time whether there were any safety-catches which you could recommend for rope guides?—There are several that it would be well to examine; there is one which has been recently brought out by a Bristol man, Albert Hanley. I do not know whether you have seen it at all, but it seems to me that that ought to be tested. He has sent a description of it to me; I am interested in those appliances, and I think it is well worth a trial. Of course it is one thing to see it working in a small model, and it is another thing when you come to apply it to a full-sized cage.

2508. I think we are all agreed upon the advisability of trying anything of that sort which would tend to insure safety; the difficulty is to find out the reliable devices?—That is so.

2509. Now one question on the subject of Special Rules: you say that the present system of arbitration is very cumbersome, and the case of arbitration in South Wales is held up against it?—Yes, that is the standing illustration.

2510. But surely it is a fair system, is it not?—The only remark that I have to make upon it is that I would like to see an opening for consultation with the representatives of the men.

2511. But I think that has always been done in Wales?—Then that meets my case.

2512. I thought your objection went rather further—that it was cumbersome, and that it took such a long

Digitized by Google

Mr. J. Gerrard.
26 July 1906.

time going to arbitration. But I put it to you that even if it is cumbersome it is better to keep to the present system than to adopt another system which might be less cumbersome and not so fair?—If I were a coalowner I should take that view. I think I should object to the Secretary of State drawing up arbitrarily a code of regulations which might be very oppressive.

2513. But he is not the responsible party. One general question: I take it from what you have said here to-day that your district is in a very happy state?—We have got a good record.

2514. Yes, very good, I should say. But is it your experience that the inspectors and the owners at the present time get on very much better together than they used to; or rather, I should put it in this way, that you, the inspectors, get your own way much more nowadays than you used to?—I think so.

2515. By consultation with the owners?—Yes.

(*Mr. F. L. Davis.*) I think all the other points which I had to put to you have been dealt with.

2516. (*Chairman.*) I suggested to you that possibly it might be well to have different certificates for fiery mines and for non-fiery mines; that is to say, that a man should be allowed a certificate which would enable him to be manager of a non-fiery mine, but that if he wanted to be manager of a fiery mine, he must have something in the nature of a special certificate. Would you find any difficult in defining what a fiery mine is in your district, or would you find any difficulty in drawing up a list of mines as to which a fiery-mine certificate would be necessary?—I do not think I should have any difficulty at all.

2517. You do not think there would be any difficulty at all if you were asked to draw up a list of mines, as to which you thought it was necessary that a man should have some knowledge of fiery mines? You could do it?—Yes, from that point of view. I should like to mention this point which was not touched upon, in connection with shaft accidents. I came prepared with information with regard to the use of mechanical arresters, safety visors, to stop the winding engine, and to prevent accident.

2518. That is, to prevent overwinding?—Yes—supplementary to the safety hooks. We have had three cases of engine-men dying in the engine-house; we had one case of an engine-man dying at his post—he started to lower the men down the shaft, and just had time to put on the steam brake to stop, and he died with the words in his mouth "Is the steam-brake on?" If he had not been able to put the steam-brake on, those men would have been dashed to the bottom. Now there are arrangements with regard to that, and in the Report for last year there is a statement as to 18 winding engines fitted with arresters to prevent that kind of accident. There is Fraser and Chalmers' Whitmore Patent. That has been proved. It is applied to a number of winding engines, of which I have a list, and it is proved, and is in operation. I think the cost of it is only about £100; it would absolutely prevent such an accident happening. Then we have Bertram's visor, which shuts off the steam, puts on the steam-brake, and stops the engine in case the engine-man does not do it; I think that can be applied at a cost of about £70 or £80. There are two others also, Lindley's and the Burnley arrester. Those are appliances to meet accidents occurring to the winding engine-man.

2519. Have they been tested?—Yes, their efficiency has been proved. I thought I would like to bring that before you.

2520. Thank you. Is there anything else you would like to say?—No.

SEVENTH DAY.

Wednesday, 17th October 1906.

PRESENT:

Lord Monkswell (*Chairman*).
Sir Lindsay Wood, Bart.
H. H. S. Cunynghame, Esq., C.B.
Wm. Abraham, Esq., M.P.
F. L. Davis, Esq.
Enoch Edwards, Esq., M.P.
Thomas Ratcliffe Ellis, Esq.
John Scott Haldane, Esq., M.D., F.R.S.
Robert Smillie, Esq.
S. W. Harris, Esq. (*Secretary*).

Mr. Robert McLaren, called and examined.

Mr. R. McLaren.
17 Oct. 1906.

2521. (*Chairman.*) Are you the inspector of No. 1 District?—I am.

2522. Have you read the evidence which has already been given before us?—I have.

2523. Perhaps you will tell the Commission whether you agree with the definitions of the duties of inspectors which have been put before us by the other inspectors, or whether you wish to add anything to their statements on that subject?—I think Mr. Martin has detailed them pretty well in his answers to the questions.

2524. Then you agree with him?—I agree with Mr. Martin.

2525. What do you say with regard to the size and conditions of the districts?—My district is a pretty large one, embracing, as it does, twenty-three whole counties and part of two others: but the counties for coal mines are ten, which I take charge of.

2526. Do you consider you can do justice to your district in the way of inspection—I mean that it is not too large?—So far as the coal mines are concerned, I think, probably, the inspection is quite sufficient, but it is utterly impossible to do full justice to the quarries.

2527. Then what would be your suggestion with regard to the quarries?—The only thing would be to provide another assistant, if that were possible.

2528. You mean quite distinct from the coal mines?—Not quite that, but it would give the coal mines inspectors more time to see to the quarries—to divide the work of the quarries and the mines equally amongst them.

2529. You think, taking the quarries into consideration, there ought to be more inspectors?—That is my opinion.

2530. How many would you suggest?—One would be ample for my district.

2531. If you had one inspector besides yourself in your district, you think that would be sufficient?—One assistant—in the meantime I have two, but if I had another I could do it all.

2532. You do not suggest that there should be an inspector of equal rank to yourself?—Certainly not.

2533. But that the whole work would be done by yourself and three assistants?—Yes.

2534. As regards the coal mines, do you consider that the underground inspections that you and your assistants are able to get through are sufficient?—Last year

Digitized by Google

we were able to manage for the first time to see all the mines, and to make underground inspections in all the mines.

2535. For the first time?—Yes.

2536. I suppose you consider it is desirable that every mine should be inspected?—I do. You must understand that does not mean every pit: it means every colliery or mine.

2537. On the whole you consider that during the last year your underground inspections have been sufficient?—Yes, so far as we were able.

2538. But that is the first year in which you have been able to see them all?—The first year. The year before that I think all, except a very few of the smaller mines, were inspected.

2539. With regard to proceedings at inquests, do you make a point of attending the inquests yourself, or do you consider that the attendance of one of your assistants is sufficient?—As a rule I try, so far as possible to attend all the inquests. Suppose my assistants have made inquiries into an accident, I go myself to the inquiry, if I can manage it. Last year I was at twenty-four out of forty-one.

2540. Would you say it was desirable in all cases that you should attend? Suppose it should happen that an assistant of yours knew the particular district better than you did, or knew the circumstances of the case better than you did, might he not be quite as good a man as yourself to attend the inquests, or, perhaps, under some circumstances, a better man?—It would very much depend, because sometimes, in reading over the reports, I see that some things might possibly be rectified in connection with an accident, and I try to get to the court to bring it out, so far as I can.

2541. So that it would be desirable you should attend all, you think, in case something should turn up which you think should be remedied?—So far as possible. If it is a simple case and nothing in it, I should not require to go; my assistant could go. The inquiries in Scotland are a little different from what they are in England, in so far as up to recently some of the Sheriffs have held that we could not bring in any case of a breach of a rule, and he would not allow us to bring up any matter where a breach of the rule had taken place in connection with an accident.

2542. Suppose you came to the conclusion that a breach of the rule was the reason of the accident, would the Sheriff prevent you making a report to that effect? I do not quite understand your answer?—In some cases in the past the Sheriff has absolutely refused to allow me to make any comments whatever as to any accident occurring in reference to a breach of a rule, or even to put any question, and it has caused some friction.

2543. On what ground?—On the ground that such a thing was not allowed under the Fatal Accidents Inquiry (Scotland) Act.

2544. That is different from the law in England?—Entirely.

2545. Is there anything in the Act which would justify the Sheriff taking that view?—I do not know.

2546. (*Dr. Haldane.*) That Act has been amended?—That has been rectified to some extent.

2547. (*Chairman.*) Mr. Cunynghame thinks it has been entirely rectified?—I am rather afraid not, because yesterday, before I left for London, I had to attend an inquiry, and the question arose again, and some difficulty has again arisen.

2548. You are not in a position to tell us the kind of difficulty?—Yes; the difficulty was this: a fall of side took place. The Procurator Fiscal asked me what I thought about the matter, and I wrote to say that I thought the manager was to blame. He made an independent inquiry, and then he thought he was not to blame. The result was that when I put a question yesterday and asked the Sheriff to warn him, the Procurator Fiscal objected.

2549. He had a difference of opinion with you as to whether the manager was, or was not, to blame?—Yes, and in my opinion General Rule 21 was entirely violated.

2550. You wanted to carry that matter further, and to ask questions about it, and he would not allow them to be put?—Quite so. He asked me not to put any questions incriminating the witness.

2551. (*Dr. Haldane.*) The inquiry is not a criminal inquiry?—No, but the rule is that if a witness is examined in court, and there is blame attaching to him, he has to be warned by the Sheriff before the questions are put.

2552. (*Chairman.*) You wanted that warning to be given?—Yes, but the Procurator Fiscal asked the Sheriff not to allow these questions, because he had not given notice that this man was to blame, in the terms of the new Fatal Accidents Inquiry Act.

2553-4. The Procurator Fiscal's opinion was that under the Act the witness ought to be given notice beforehand?—Yes.

2555. What kind of notice?—I do not know the notice, but they have to give notice, I understand, according to their instructions.

2556. That notice not having been given, you were unable to pursue the investigation as to whether or not the manager was to blame?—No.

2557. (*Mr. F. L. Davis.*) That would apply whether it was a workman or whether it was the manager—any witness?—Yes, any witness at all.

2558. (*Chairman.*) The Act was passed on the 4th August, 1906. Is it by the principal Act it is suggested this notice is required?—I understand it is in connection with the instructions issued by the Lord Advocate of Scotland to the Procurator Fiscal as to the mode of procedure. I have received no instructions of any kind whatever as to it.

2559. (*Mr. Smillie.*) And there is nothing in the Act about it?—Nothing in the Act.

2560. (*Chairman.*) The last Act is partially repealed: "Sub-Section (7) of Section 4 of the Fatal Accidents Inquiry (Scotland) Act, 1895, is hereby repealed." Then, "Sub-Section (10) of Section 4 of the Fatal Accidents Inquiry (Scotland) Act, 1895, is hereby repealed," so that it is only partially repealed. At all events, as I understand the case now, if you wish to suggest at an inquest in your district in Scotland that any witness before the Court is to blame for an accident, you would have, at some definite date before the inquiry took place, to give notice to the witness that you intended to bring his conduct in question?—That is left to the Procurator Fiscal. But what I have arranged to do is this: although I have had no instructions, where I think there is blame I say so in my report, and the duty of the Procurator Fiscal is to send to the person who is supposed to be to blame.

2561. It might happen that when you go to an inquest you may hear things that might lead you to the conclusion then and there on the spot that a certain witness might be to blame?—Yes.

2562. And, according to you, you are not entitled to ask that witness any question which may get him into trouble if you have not given the notice beforehand?—Yes, that is where the trouble comes in. As I say, I cannot say off-hand whether or not he is to blame until I hear the evidence. If I say off-hand "I think So-and-so is to blame," that gives him the opportunity of asking that man to the Court so that he may clear himself.

2363. So that if, on the first blush of the thing, before the inquest, you come to the conclusion that a certain person is to blame, then you have, so to speak, the remedy in your own hand, and you can lay the foundation for asking questions at the inquest?—Yes.

2564. But if, at the inquest itself facts come to light which induce you to suppose, contrary to your former opinion—or facts upon which you have not formed any opinion at the time—that a person before the Court is to blame, you cannot there and then ask him questions as to his conduct?—Apparently not.

2565. At all events, that is how you believe the law stands?—Yes. There is great difficulty in the matter, and I really do not know how to get out of it. At the same time I believe I have power to raise a prosecution apart altogether from that court.

2566. Yes, but surely it would be desirable, before the jury come to a conclusion as to the cause of the accident, that you should have an opportunity of asking a witness any questions you think fit?—It would be.

2567. With regard to the clerical work you have to do, do you think you have sufficient assistance in doing the clerical work?—My clerical work daily is between three and four hours.

Digitized by Google

Mr. R. McLaren.

17 Oct. 1906.

2568. Do you think it is necessary you should spend as much time as that in clerical work?—I cannot avoid it—the clerical work is so much.

2569. Supposing you had more assistance, do you think you could reasonably depute a good deal of what you now do to other people?—I think I could depute about half.

2570. With advantage?—With advantage, because it would allow me more time to get through the district and to make underground inspections.

2571. So that if you had what you consider adequate help in clerical work, you think you need only spend about an hour and a half or two hours upon it, whereas you now spend three or four hours?—Yes. I ought to explain that all my clerical work is done after I get home at night, and sometimes I have to remain up till 12 o'clock to do it. I allow it to interfere as little as possible with my daily inspections.

2572. What clerical assistance have you, to begin with?—I have a secretary who devotes some hours every day, or every evening, to assist me in writing letters.

2573. Do you have the whole time of that secretary?—It is my own daughter. She is constantly at home, and she is there at hand to do any work I wish.

2574. Does she get paid?—She gets paid by me. She is at home with me, and does my work.

2575. Is she a paid secretary allowed by the Government?—I have a clerical allowance of £25 a year.

2576. You are allotted £25 a year, and that is how it is spent?—That is how it is spent.

2577. Do you suggest that that sum is not adequate?—If I had some person who could devote the whole of his time to, say, doing writing with a typewriter, it would certainly be an advantage. Of course, I could not get that with the present sum allowed to me.

2578. What do you suppose would be the cost of what you consider adequate secretarial assistance?—I should say £50 a year would easily cover it.

2579. If you had £50 a year you consider you might get sufficient clerical assistance to enable you to devote an hour or two more to your other duties?—Yes. There is a great deal of the clerical work that must necessarily come under me.

2580. You say about half you could depute to someone else?—Yes.

2581. I do not understand that your work of inspection is hindered by the amount of clerical work you have to do now. The only thing you have to do is to work late at night, and you are not quite so fresh, perhaps, for your other work?—I often have to go out for 10 hours a day without seeing my letters, and then getting back and sitting down to my desk for four hours, and that just takes it out of one.

2582. What time have you to start in the morning?—To go to certain parts of my district I must leave home shortly after eight o'clock in order to catch suitable trains.

2583. That is not so all over your district?—The best part of it.

2584. You would have to start at eight o'clock in the morning?—Yes.

2585. About what time would you get back?—Sometimes about seven o'clock, after a long day.

2586. But, I suppose, sometimes you get back fairly early in the afternoon?—Yes; when I have a great deal of work to do I sometimes take a short day and try to get back early, and so get my work up.

2587. It seems last year you were able, notwithstanding the clerical work, to do all the inspection you considered was necessary?—Yes, but we made an extraordinary effort last year to do it.

2588. Then with regard to the preparation of the Annual Statistics, as I understand inspectors have to do that themselves now?—Yes.

2589. Would you rather that was done at a central office from memoranda supplied by you, or would you prefer to do the whole thing yourself?—I should prefer that the whole thing was done by myself, because it keeps me in touch with the whole of the district and the owners; and, besides, questions often arise during the course of the year in reference to which you have to look up these papers.

2590. You would prefer to present your Annual Report in the present shape, giving the statistics which you yourself have got out?—Yes.

2591. Then as to the rules about electrical assistance?—I have no difficulty in my district in reference to that. We find it difficult to get the thing done uniformly, as the inspectors are not all agreed as to the reading and meaning of certain of the Rules.

2592. Are there any Rules you would like to draw the attention of the Commission to?—None in particular. I have had no difficulty, so far as I am concerned.

2593. And the Rules you work under are fairly intelligible?—Yes, I think they are all right, so far as I am concerned.

2594. You have no difficulty in understanding what they mean?—Not so far as they have gone yet.

2595. You have heard other people state that they have had difficulty with them?—Yes.

2596. You do not think there is any need in your case for electrical assistance?—The only thing would be if any case arose in the district, in consequence of which an expert was required, then I might apply for the help of Mr. Ram at the Home Office.

2597. You think that would be sufficient?—That would be sufficient, I think.

2598. Then with regard to General Rule 38, as to inspection underground by the workmen. Do you find in your district the workmen avail themselves of that power?—They do not.

2599. Not at all?—So far as I know there has been no case for several years of an inspection being made underground by the workmen.

2600. To what do you attribute that?—I have spoken to several of the men upon it, and I think very many of the men do not wish to do it because it is too hard work.

2601. How does the matter stand with reference to accidents in your district?—Last year there was an improvement except in the falls of roof and sides—they were very bad, the worst there have been for several years.

2602. There have been in your district a considerable number of fatal accidents from time to time, principally from fall of roofs and sides?—Yes, that is the worst class.

2603. And I suppose there have been some accidents from explosions as well?—Yes.

2604. Do those accidents not appeal to the men? Do they not think they can do anything, by having their own inspection, so as to render those accidents less frequent?—I think inspection by the workmen would have a good effect in that way, as it might help to keep things up to the mark.

2605. Apparently they do not think so themselves in your district?—I do not know what they think, but as a matter of fact they do not make any inspection under General Rule 38.

2606. You think they do not make any inspection because they seem to think the work is too hard?—Well, I have spoken to several men, and they said they would not take £1 a day and do the work that one has to do in making an inspection—they have to crawl through the roadways and airways.

2607. Do you think any arrangement could be arrived at by which the men should be paid something in addition to their ordinary pay, so as to induce them to undertake work of that kind?—I think if the Miners' Union would take the matter up and get it done systematically, and pay the men well, they would do it.

2608. You mean give their own men a sufficient wage to make it rather a matter of profit to them to undertake it?—Yes.

2609. If they were paid what they consider a sufficient sum to recompense them for the trouble and hard work you think they would do it?—Yes, I think they ought to be induced in that way—they ought to get extra for it. I do not think a man can be expected to go through that laborious work and then only get the same wages as at the face.

2610. Have you any suggestion to make as to any other mode of payment excepting to the men themselves?—There might be a question whether the Home Office should not have a fund of that kind

Digitized by Google

2611. You would not suggest that the mineowners or managers should pay? Probably the men would not be content with that system, as they would think that those who inspected might perhaps be a little diffident in expressing their opinion?—I fear that would be the result.

2612. You suggest that possibly the difficulty might be got over by the Government—the Treasury, say—paying something to some central fund?—Something of that kind.

2613. At all events, you think it would be difficult to induce the men to undertake the work without paying them an adequate wage?—I think it would. Speaking for myself personally, I do not think I would undertake work like that for the ordinary wage of a miner.

2614. Do you know what happens in other districts in reference to that?—I do not know what wage they get, but I should suppose it is the same.

2615. At all events, they are only offered the ordinary underground pay?—So far as I know.

2616. Your belief is that that is the reason they do not undertake it?—Yes.

2617. You say you think it is an unfortunate thing that they do not undertake it?—Yes, I think it is. I think it would do a great deal of good if they undertook it.

2618. Then as to the question of the discipline in the mines and supervision by the owners, in your district how far is discipline enforced by prosecution, and how far by fine?—Until within recent years the discipline has been much better in reference to prosecutions. Hitherto it used to be the case that the mineowners thought that no prosecution should arise unless the inspector took it up. We have managed so far to get that opinion put aside and to let the managers understand that they themselves are responsible for the discipline of the colliery, and they are prosecuting the men in a good many cases now where they fail to carry out the special rules.

2619. Cases which do not come under your observation at all?—Cases which do not come under my observation at all until I get notice afterwards.

2620. Do you think that the system of fines is carried too far?—In my district I only know of two cases of fines that have taken place recently, and I have seen the owners and told them I do not think it is a good system at all, and I know unless certain conditions are fulfilled in reference to the Truck Act it is illegal, and it has been stopped.

2621. You have only known of two cases of fines?—Only two cases of fines which have come under my notice.

2622. For breach of discipline?—Yes.

2623. But there must be breaches of discipline in your district?—Yes, but I advise prosecution. If it is a serious breach, prosecution; if it is not a serious breach, caution.

2624. You think in the case of a serious breach the men are prosecuted when it is desirable they should be?—I think so.

2625. Have you anything more to say on that point?—I think fining is a bad system altogether. I think it is better to prosecute, because it has the effect of helping things considerably. I may mention one case. Many years ago the men in one colliery refused to put up spraggs in their places, and a serious accident occurred. The manager at last was induced to take up a prosecution. He did so, and two men were fined. The result was that for years afterwards there was not a case of a fall for want of spraggs.

2626. We have heard it stated that in some cases the Miners' Association pay for the defence of men prosecuted by owners for breaches of rules quite irrespective of the merits of the case. If a man is prosecuted for anything, even if it is for a breach of the rules, it is stated the union pay for the defence of the man prosecuted?—I have heard it stated, but I have no knowledge of that in my district except in this case. I know the agent for the men in Fifeshire does take up cases where the men are prosecuted for breaches, but who pays him I cannot say.

2627. Does he take up the cases of the men in every instance, or does he go into the merits of the case?—He only takes up the cases where he thinks the men have got something to say for themselves.

2628. (*Mr. Smillie.*) Did you say the miners' agent?—I should have said the agent for the Miners' Union. *Mr. R. McLaren.*

2629. He is the lawyer who happens to do the work for the Miners' Union?—Yes, but whether it is on behalf of the men themselves or the union I cannot say. 17 Oct. 1906.

2630. (*Chairman.*) At all events, you say that so far as you know he does not take up any cases irrespective of the merits, but only where he has some reason to believe there is something to be said on behalf of the men?—Yes, and I think it is perfectly right in that case that the men should be defended.

2631. (*Mr. Smillie.*) Would you suggest for a moment that the agent would not take up any case which he was paid for, whether he believed there had been a breach or not?—Certainly not. If paid for by the men he would take it up—he lives by that.

2632. You suggested he would only take up cases where the men have something to say for themselves, and that led us to believe that he only acted where employed by the union. The agent is a lawyer, and he will take up cases whether the men are able to say anything for themselves or not. Do you suggest that you have ever known him taking up a case and defending a man for which he was paid by the union?—I do not know of any case. I know as a fact he has taken up cases of men, but whether as a private agent or on behalf of the Miners' Union I cannot say.

2633. (*Chairman.*) You have no knowledge of his acting on behalf of the Miners' Union?—I have not.

2634. How far is the inspection of the mines by the officials adequate under General Rule 4?—Under General Rule 4, of course the inspection is made in the morning by the fireman, to begin with—two hours before the men commence their work in most mines, and in some mines three hours before. I am rather inclined to think that while the faces are examined the roadways are not.

2635. How do you mean, "rather inclined to think"?—Simply because the district assigned to them seems to me to be too large to allow that to be done within the time.

2636. You think there is not sufficient inspection?—I think there is not.

2637. You say the roadways are not examined, and they ought to be?—They ought to be, in the terms of the rule.

2638. Therefore, you would suggest that there ought to be more persons employed on this work?—Yes; there should be more firemen employed with smaller districts.

2639. Then with regard to the reports. It seems in some cases the reports of these inspections must, under the Statute, be given, and in some cases not. Do you suggest that a report should always be made of every inspection?—I think there ought to be a written report in the report book for every inspection made.

2640. Have you anything more to say with regard to Rule 4, Sub-section 2?—In reference to the inspection during shifts, I should like to state that this second inspection may be at any time between the shifts. That is to say, supposing a shift starts at six o'clock in the morning and stops at two o'clock, the fireman might start to make his inspection at six o'clock in the morning, and it ends at ten, and in other cases he leaves it to the end of the shift. In several cases within my own experience they are made at such a time as to be of little use, and I think there ought to be a time fixed, or, better still, there ought to be two inspections during a shift.

2641. You think there should be one at the beginning?—One shortly after the shift begins, and the other about mid-day. I may state, for the information of the Commission, that under the Act of 1872 and the special rules enforced in the East Scotland district, we had two inspections during a shift; but then the Act of 1887 was passed, and, of course, that was a backward step so far as we were concerned.

2642-3. You think your special rule ought to be made a general rule, and to be applied to every coal mine?—I think so. We have no special rule of that sort now, but we had it prior to 1887.

2644. Have you any opinion upon the subject of an owner being responsible in connection with the working of a mine, as to which we have been referred to a considerable number of legal cases?—There is a difficulty

Digitized by Google

Mr. R McLaren.
17 Oct. 1906.

in this matter; but I think that probably the agent should have the same responsibility as the manager. I have known several cases where an agent sheltered himself behind the manager. On the ground of having appointed a manager he had no responsibility, and only in one case that I remember were we able to put the blame upon the agent, and get him fined.

2645. It has been suggested by one inspector that there should be some sort of qualification for a mine agent, and that he should have some sort of technical knowledge. Do you think that would be desirable or not?—I think that would be very desirable. In many cases a man is appointed as agent who knows nothing about mining matters; he is a commercial man, and if he interferes with the management, when having no practical knowledge, it is against the interests of the colliery.

2646. At the same time, as Mr. Ratcliffe Ellis pointed out, the owner of a mine might think it desirable to appoint an agent, for instance, who was a commercial man, and a manager who had technical knowledge; and that they might deliberately wish that an agent should be entirely under the manager with regard to technical matters, and that he should only advise the owners with regard to commercial matters—as to working the mine so as to make it pay commercially—and the manager should have the entire charge of all technical matters?—If the agent will allow the manager to have sole charge of the mining operations, then it might be right, but I am rather afraid you will not get an agent to do that. He interferes, especially when it comes to the question of carrying out certain things.

2647. He has, I understand, under the Act of Parliament, authority over the manager?—He is superior.

2648. The definition of "agent" in Section 75 is: "Agent when used in relation to any mine, means any person appointed as the representative of the owner in respect of any mine, or of any part thereof, and as such superior to a manager appointed in pursuance of this Act." He has the same superiority over the manager as the owner would have, and he stands in the place of the owner. I imagine that is what it means?—Quite so.

2649. Do you think that that is a bad system, and that the owner if he appoints an agent at all should appoint someone with some sort of technical knowledge?—Yes, and make him equally responsible with the manager for the conduct of the colliery.

2650. Would you suggest that it should be obligatory on an owner to appoint not only a manager, but also an agent?—I think not. In small collieries, of course, it would not be desirable.

2651. Do you wish to say anything more about these cases?—I have nothing more to say upon the subject.

2652. Then with regard to accidents, and, first of all, explosions. I see last year you had only one fatal accident from explosion, and nineteen other accidents, and twenty-nine people were injured?—Yes.

2653. Is that about your average report?—No; last year was better than any year up to 1898. In 1901 the district was divided, and there were no accidents in that year, but the portion given over to the West had some accidents.

2654. Do you suggest any fresh precautions for the prevention of explosions?—The East Scotland district is in rather a peculiar position, having so many accidents by slight explosions. In that respect I think probably Sub-section B of General Rule 8 has been rather against the district. The clause at the end is: "and when it is necessary to work the coal in any part of a ventilating district with the safety lamps, it shall not be allowable to work the coal with naked lights in another part of the same ventilating district situated between the place where such lamps are being used and the return airway." It has been found that in many cases if that rule were not so stringent, some of the slight explosions which occur would not have occurred at all.

2655. You say it is too stringent?—So far as slight explosions are concerned. Where a slight blower has taken place the owner would put in a safety lamp at once, but because safety lamps have to be put in upon the return side they object to doing so, and they try to keep the place clear by a current of air—sometimes they fail and an explosion occurs.

2656. You assume they think this provision is quite unnecessary?—It is not unnecessary in certain cases, but they are afraid that in putting in a safety lamp at one place, all the places on the return side would require to have safety lamps, therefore they do not put in safety lamps at all.

2657. You suggest an alteration of this rule?—If something could be done it would be better. I may mention in the shale mines, where this does not apply, we manage to reduce the accidents to almost nil by asking them to put on a safety lamp whenever they get the least trace of gas.

2658. (*Dr. Haldane.*) A safety lamp at the place?—Just at the place.

2659. (*Chairman.*) It would be sufficient if a safety lamp were placed in the dangerous place, and that then between the safety lamp and the return air-way you might work with naked lights?—Yes, if there is only a small trace of gas. Another thing which is against the district, I think, is this: It has been held that once safety lamps are put into a district, they never can be withdrawn. I think that that acts very badly.

2660. Where do you find it stated that where a safety lamp has been once in use they shall never allow naked lights?—That is not in the rules. That is the opinion formed in the district, which I think is a mistake.

2661. Is that not an erroneous opinion altogether?—Hence the reason why some of the owners are so averse to putting in safety lamps.

2662. The owners believe if they once allow a safety lamp to be used is a confession that the mine is such that safety lamps ought to be always used?—Yes, always used.

2663. And they think there would be great difficulty—or it will be impossible—to withdraw the safety lamps and use naked lights?—Yes.

2664. That is their belief?—That is their belief. I try to point out to them that there is nothing of the kind in the Act. I think surely if it is necessary to put in safety lamps, if the conditions alter so that safety lamps are no longer required, and the Inspector of the district is satisfied that there is no danger, the lamps might be withdrawn.

2665. That is a mistake on the part of the owners?—Yes.

2666. You have nothing to suggest in the way of making the rule more stringent?—No; I think so far as the rule is concerned it is all right.

2667. What about watering?—I am in the happy position that in my district I have only two mines where there is any dust at all, and that is dust only in the roadways; but watering is done by means of pipes tapped every fifty yards, and a hosepipe every twenty-five yards.

2668. Then, so far as your district is concerned, there is sufficient watering?—Yes.

2669. You do not wish to say anything upon the subject of watering?—I have nothing to say so far as that is concerned.

2670. Then as to ventilation, General Rule 1 is: "An adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases." Do you think that rule is adequate?—It is a very difficult matter to say what is an adequate amount of ventilation. I have found in my own experience some places where I thought it was not sufficient and adequate, and the manager thought it was, and the men themselves even thought it was. I have found, however, in some mines that they are in the habit of stopping the fans or slowing them down in the evening, which I think should be prohibited, and this rule should be strengthened in that way.

2671. You think the fans ought to be run the whole time?—I think if a certain quantity of air is required during the day to ventilate a colliery, the same amount is required during the night. Consequently, if the fans are going by day they should be going by night, because gases are frequently given off in the night.

2672. Do you think the explosions have taken place more frequently in the morning when the fans have been stopped over night?—As a rule, a large number of the firemen get burnt in the morning.

Digitized by Google

2673. You think that would be avoided if the fans were to go at full speed through the night?—I think if possible there should be no gas at all for it to burn any man. Of course, if a fireman carries a naked light it is against the rules, and he suffers if he gets burnt.

2674. What do you say as to the cap of a safety lamp indicating danger or insufficient ventilation?—It would depend upon what kind of oil or illuminant was used to get a cap.

2675. That is to say, one kind of oil shows a cap much more easily than others?—In the case of some spirits, if you lower the light down far enough you will get a cap with the vapour off the spirit, but there is no gas present. The question, therefore, would be as to what should be the oil used. Colza oil might probably be the best oil to show a cap.

2676. It does not show a cap, you mean?—Not so easily as the spirit.

2677. You think it would be an advantage that the cap should not be shown so easily?—Unless you take a very special lamp, such as the hydrogen lamp, to show the percentage you are not able to distinguish how much gas is present in the air.

2678. Would it not be well to have a rule that the presence of any cap should be indicative of insufficient ventilation, and that the men should be withdrawn?—I say the presence of any cap is sufficient to justify the withdrawal of the men.

2679. (*Dr. Haldane.*) Not in a hydrogen lamp?—No, not a hydrogen lamp, but the ordinary working lamp.

2680. (*Chairman.*) You say some spirit lamps might show a cap without any gas at all?—Yes.

2681. How would that happen?—In lowering the flame, with certain oils, you sometimes find a cap.

2682. You say the rule ought to be that whenever a cap is shown in a safety lamp the men should be withdrawn?—Yes. I suggest the rule might be strengthened in that sense.

2683. General Rule 7, about the withdrawal of the men, is: "If at any time it is found by the person for the time being in charge of the mine, or any part thereof, by reason of inflammable gases prevailing in the mine, or that part thereof, or of any cause whatever, the mine or that part is dangerous, every workman shall be withdrawn from the mine or part so found dangerous"?—That only gives power to the person in charge of the mine. If that power was extended to the Inspector in charge of the district it might help matters and strengthen it.

2684. You think the Inspector in charge of the district should have the power to issue some sort of Order that when there is a cap shown the men should be instantly withdrawn?—Yes, or if at any time he visits the mine and finds a cap, he, as well as the officials, should have power to withdraw the men.

2685. In the great majority of cases he would not be down the mine at the time. Do you suggest, as an Inspector, it should be in your power to issue a sort of General Order to that effect, that all managers should be obliged to withdraw the men if there is a cap discovered?—That it should be made more definite.

2686. And instead of saying by reason of inflammable gases, the presence of a cap on a safety lamp should be considered sufficient indication of danger, and the men should be withdrawn?—Something of that sort.

2687. You would alter the rule to that effect?—Yes.

2688. (*Mr. Smillie.*) Does that mean that if you find gas in the morning which showed a cap, that all the men in that section should be withdrawn?—I should say in that section—if you find gas in the morning in a particular section, that the men should be withdrawn.

2689. (*Chairman.*) Have you anything more to say upon the question of ventilation?—I have nothing more to say about ventilation.

2690. Then as to safety lamps. We have discussed Rule 8 to some extent already. Have you any Special Rules with regard to safety lamps in your district?—We have Special Rules in reference to the details of how they should be used, but nothing to strengthen the General Rule as to safety lamps.

2691. Your Special Rules deal with the kind of lamp that shall be used?—Not so much the kind of lamps as the conduct of the men who have charge of them.

2692. What sort of Special Rules have you?—There are the Rules of 1887, in reference to examining the lamps and working the lamps.

2693. Do you think there is anything in your Special Rules that might be incorporated into the General Rules?—I think there are several rules which might be incorporated; for instance, the rules with reference to blasting and the use of gunpowder might be incorporated into the General Rules.

2694. As regards the testing of lamps, do you think there is anything which might be put into the General Rules?—I think it would be well to have lamps tested so that they could be safely taken into a mixture of gas and air; because we sometimes find lamps are defective. I have some photos here of an explosion which took place this year with a Davy lamp that was defective and caused loss of life.

2695. Have you any opinion as to the class of lamp that ought to be used—I mean in reference to any special lamp being better than another?—I think the lamp might probably be tested as to whether it was sufficient and safe to be used in a mine with inflammable gas. In all districts I understand the lamps are examined and tested every morning before the men get them.

(*Mr. Cunynghame.*) You are referring to the type of lamp?

2696. (*Chairman.*) You, I understand, as a matter of fact, say that all lamps are carefully tested every day?—Yes, every day, and examined before they leave the lamp cabin, and they are tested when they reach the shaft bottom.

2697-8. (*Mr. Smillie.*) They are not tested in an explosive mixture?—I mean to say they are examined and tested by blowing to see that they are tight.

(*Mr. Wm. Abraham.*) But the work of testing is essential and necessary.

(*Mr. Cunynghame.*) Testing a type is one thing, and examining a lamp which comes up to the type is another.

(*Mr. Wm. Abraham.*) I quite agree, but you cannot do away with the testing.

(*Witness.*) Each lamp has to be examined and tested by means of a man blowing to see that it is tight.

2699. (*Mr. Cunynghame.*) The Act calls that "examining," and another point is that the examination must be thorough?—"Examine" is the word that is used in General Rule 10; I mean in that sense.

2700. (*Chairman.*) Yes, "examine" is the official word which is used. Then Rule 10 seems to be very explicit with regard to that, and it seems to be quite sufficient, does it not?—Yes.

2701. Rule 10, in your opinion, is satisfactory?—Yes, so far as I can see.

2702. Is there anything further that you wish to say about the use of safety lamps?—No.

2703. With regard to shot-firing, what would you say as to its being desirable or practicable to prohibit shot-firing during the shifts in your district?—So far as my district is concerned, I have no difficulty in that matter, but I suppose the question would refer to shot-firing in dusty mines.

2704. You have no mines that are dusty except in the roadways?—Except in the roadways, and the provisions which are made for that are contained both in the Explosives Order and General Rule 12.

2705. Then you have had no experience of dry and dusty mines?—We have no such cases at present, but, of course, in the portion of the district handed over to the West we had experience.

2706-7. Is there anything in reference to that experience that you would desire to tell the Commission?—In reference to shot-firing, in one seam in the Hamilton District, they absolutely prohibited shot-firing in the seam. Of course, in those days there were no permitted explosives; it was gunpowder that was used.

2708. Have you anything to say with regard to the use of these various kinds of explosives?—I have nothing to say about those matters.

Digitized by Google

Mr. R. McLaren.

17 Oct. 1906.

2709. As regards miss-fire shots, how do you deal with that matter?—I think the use of the word "miss-fire" in the Rules is a little unfortunate, and I think it would be better if the term "hang-fire shots" were used. We have Special Rule 95 which deals with that, and which provides: "If a shot has been lighted and does not explode, no person shall enter the place where it was lighted until thirty minutes shall have elapsed." We find in some cases that a man has been taken up for breach of that rule, and the judges have held that the shot did explode, and he was not convicted. In order to try and get over that difficulty, I have had a rule drawn up with the sanction of the Secretary of State, to be put in force in the shale mines. It has been always a difficult matter in the shale mines, where there are about 2,000,000 shots fired per annum; the difficulty has always been to keep men from going back to shots which they have lighted or attempted to light, and there have been cases in which they have gone back and the shots have exploded upon them. We have to prohibit their firing more than two shots except on certain conditions, where we allow four shots to be fired, and not more than two to be lighted by the same person.

2710. That is a rule which provides that "No more than two shots shall be charged and fired in any working place at any one time, except in upsets rising more than 1 in 3½, where four shots may be charged and fired, provided that one person lights two shots only. Should the fuse of any shot miss-light, the person or persons engaged in firing shall leave the place and not return for the space of 30 minutes." This Rule has not yet been considered by the Secretary of State?—Yes, it has been. I got that rule established for the shale mines.

2711. Has it been established?—Yes, and it has helped very considerably in the shale mines.

2712. Would the same thing apply to coal mines?—I think that it is a mistake to light too many shots at once.

2713. Then you would have some restriction upon the number of shots to be lighted at once?—I would.

2714. (*Mr. F. L. Davis.*) Is there much shot-firing?—About 2,000,000 shots per annum.

2715. I mean in the coal mines?—There is a good deal of shot-firing, but not so much in the coal as in the brushing.

2716. Do you fire the shots during the shifts in your district?—Yes, during the shifts.

2717. (*Chairman.*) Is it compulsory for your miners to buy their explosives from the owners?—In the shale mines throughout it is.

2718. And in the coal mines?—In a very large number of cases in the coal mines it is also compulsory. We have had a meeting recently with the owners, and since then a large number have adopted the plan of purchasing the explosives and giving them to the men.

2719. I suppose it is equally incumbent on the owners to provide convenient stores?—Yes.

2720. I suppose there has been no difficulty with regard to that?—There has been no difficulty so far as it has gone, only a large number of owners have refused to do so, and have not tried to get the men to purchase their explosives. We tried to get the owners to adopt the plan throughout the East and West Districts, but failed, but since then a number have put up the stores.

2721. (*Mr. Smillie.*) And have made it compulsory for the men to buy their explosives from them?—Yes.

2722. I understood your previous answer to be that in many of the coal districts they had made it compulsory?—Yes, and there has been no difficulty; the men sign an agreement under the Truck Act.

2723. (*Chairman.*) There is a special rule in the Lancashire district to this effect: "No missed shots shall be unrammed, but in all cases a fresh hole shall be drilled which shall not be within 12 inches of any hole which has missed fire, and shall, so far as practicable, be parallel with it. Should the missed shot contain a detonator, the shot-lighter shall, before firing the fresh hole, attach a string to the fuse of the missed shot and secure it to a prop or to the cable. Immediately after firing, the shot-lighter shall, with his hands only, and with the greatest care, search the coal or stone, and if he fails to find the detonator, or is satisfied that it has been exploded by the second shot, he shall cause the coal or stone to be loaded with the greatest care and sent to the surface for further examination. Should the missed shot not be dislodged, further holes must be drilled and fired until this is effected. He shall report the circumstances to the under-manager without delay and hand the detonator to him when found." You think that might be made a general rule?—I think that might be made a general rule. I may add that General Rule 12 is partly in the same terms.

2724. Still, this Special Rule seems to deal in great detail and very satisfactorily with the case of miss-fire shots. With regard to timbering, have you any special rules?—We have got rules recently established at the end of the Special Rules about timbering—additional Special Rules from No. 6 right on to No. 11. Those were established a few years ago.

2725. Is there anything you wish to call attention to in those rules?—I am sorry to say there has been no improvement in reference to the question of falls. Last year the state of things in my district was exceedingly bad; 58·46 per cent. of the accidents was due to falls, and there was an increase in 1904.

2726. Notwithstanding these Special Rules?—Yes. With the sanction of the Secretary of State, I organised during the year meetings on Saturday afternoons for the officials in order to help them to understand the Rule, because the Rule is, I think, rather difficult to understand. The Rule speaks about no point of the exposed part of the roof being more than a specified distance. Neither the officials nor the men seemed to understand that very well, and I found that in a great many cases the distances were far too great—12 feet apart instead of 6 feet—and I took opportunities to have meetings with the officials and men, and I addressed 1,700 of them, pointing out what the Rule meant. For some months I am glad to say there was a wonderful improvement in the matter of falls, but I am sorry to say that it has not been maintained. For the first two months of this year we had 10 deaths by falls, and since then we have had 19, that is to say, during the other eight months.

2727. Do you think anything can be done more than has been done already by special rules?—Not by special rules; but in my Report for 1905, at page 18, I make a suggestion which I think might have a wonderful effect in regard to the question of falls. Instead of the men themselves taking charge of the timbering, I think there ought to be a special man having the charge of a district to put up the timbering, and also the sprags; and I am satisfied that it would be no more costly to the owners than it is at present, because the time taken by the men themselves to put up the timber could be utilised by them in getting coal.

2728. Has that not been the case in some districts, or is it not the case now?—It is not the case in my district. It has been done to some small extent with reference to timbering the walls in the case of coal-cutting machines. I suggest that such a man should have nothing to do but to look after the propping.

2729. (*Mr. F. L. Davis.*) That is to say, an official in each district?—Yes, in each district.

2730. (*Mr. Wm. Abraham.*) You think that such a deputy should be responsible to see that the timbering is set up according to instructions?—Not only so, but I think he should be responsible for setting up the timber—that he should do it himself, and let the miner have no responsibility in the matter.

2731. What about something happening when he is not there, because he could not be with every man every hour? What about the discretion of the miner if he saw a pair of timbers, or a post, or anything necessary to be done in the absence of the deputy?—In that case I should say there should be some discretion left to the man himself to protect himself when the special man is away. But the responsibility for keeping the roof secure and putting up props at specified distances should rest upon this man, who should have a district sufficiently small to attend to so that he could get across it several times a day.

2732. (*Chairman.*) Have you anything to say with reference to a suggestion which has already been made, that the propwood should be drawn out by mechanical appliances, such as gablock and chain?—With regard to that, the gablock and chain is not used in

Digitized by Google

my district at all; the propwood is drawn out by the men themselves, and they are so expert at it that I think in the course of 10 years in the Hamilton district there was only one fatal accident in drawing out propwood.

2733. Then the drawing out of the propwood is not the cause of these fatal accidents?—No, that is not the cause; we have had no case of death through that.

2734. Then you suggest that the reason why the falls have been so frequent in your district is that neither the owners nor the men thoroughly understand the work?—They do not understand the Special Rules.

2735. And you hope that now you have explained the Rules things will go on better?—Yes, and as a matter of fact there is an improvement.

2736. You make no suggestion for further alteration of the Rules, except that you consider it desirable that a particular set of men—deputies—should put up these props?—I do not know exactly what "deputy" means. In Scotland we have no such men.

2737. Well, you think a special man should be appointed to do these duties?—Yes.

2738. (*Mr. Enoch Edwards.*) I understand that if you continued addressing your people you would get a considerable improvement. I think you told us that you met them all and explained the point?—I met 1,700 of the officials, and some of the owners have asked me to meet the men, but it is rather a big job to meet all the men.

2739. Since then I gather that the men have drifted back, so that there is no improvement now. You need to follow up your lectures?—Yes, to follow up the lectures; they are beginning to go back a little bit now, but for the first few months there was a wonderful improvement.

2740. (*Chairman.*) With reference to the examination of boilers, do you think that any further examination of boilers is necessary in your district than that which obtains?—At present, in my district, except, perhaps, at some of the smaller collieries, the boilers are examined every six weeks, and some every three months, and an annual inspection is made by the insurance companies for the owners.

2741. When do you think the boilers should be inspected?—I think they should be inspected at no less interval than under the Factory Act—once in every 14 months.

2742. Then apparently you have more inspection than that, because they are inspected by the insurance companies once a year, and you say that they are very often inspected every six weeks?—It depends upon the water they are using. The people have to clean them out and inspect them. Sometimes I have known them do it every three weeks.

2743. (*Sir Lindsay Wood.*) By whom are they inspected every six weeks, by the engineman?—He cleans the engine thoroughly, and examines it thoroughly, but he makes no report.

2744. It is not what you call an "inspection"?—It is an inspection in one way.

2745. (*Chairman.*) Yes, he makes an examination. You think the boilers are examined as much as they ought to be?—Yes.

2746. Have there been any accidents?—There has been no boiler explosion in the district of East Scotland for many years.

2747. With regard to shaft accidents by reason of overwinding, for instance, what have you to say? I see that in your Report you have a note of four people killed and 13 persons injured by shaft accidents; from overwinding there has been one non-fatal accident only. Is that about the average in the year from overwinding?—That is the first overwinding accident there has been for some time, but I am sorry to say there have been several this year, not so much from overwinding, but from what I would call underwinding.

2748. What would you suggest by way of preventing that?—There is an arrangement in operation in one of the mines at present which is called the Visor arrangement, which has proved to be a good thing, by which when the cage comes up to a certain point above the level of the scaffold it strikes a lever and releases a steam valve, which acts upon a brake suddenly and stops the whole thing.

2749. That is to prevent overwinding?—Yes.

2750. But with regard to what you call "underwinding," what is done?—The same arrangement, it appears, applies if there is too speedy winding towards the bottom. It acts in that case.

2751. There is an arrangement of that kind?—There is such an arrangement now.

2752. Which is efficacious?—It has been so at this mine.

2753. (*Mr. F. L. Davis.*) How have the accidents happened, by letting down the cage too quickly?—In one case, which I am expecting to raise a prosecution upon, a man allowed the cage to run too quickly, and then he tried to draw it suddenly up, but was too late, and it fell smash on the bottom.

2754-5. A bump on the bottom?—Yes.

2756. (*Chairman.*) Then you think the accidents would cease if you had that arrangement provided?—Yes. It has, of course, to be said for the engine-keepers that they are a very steady class of men.

2757. You have no accidents from ropes or chains breaking. You have not made any suggestions, as I understand, with regard to re-capping of ropes?—Yes; in my Report of 1905 I have made some suggestions. At page 14 I speak about the re-capping of ropes.

2758. (*Mr. F. L. Davis.*) Do you go so far as this: that you would recommend the Visor arrangement which you have mentioned?—I have recommended it to several of the owners where they have large drums, and they are going to adopt it in the meantime in order to see whether it will prevent overwinding.

2759. Do you know yourself whether it is reliable, or not?—I saw it tested at the colliery which I have referred to, and it worked all right.

2760. (*Mr. Enoch Edwards.*) Of course, there have been many serious accidents of that character?—Yes.

2761. (*Chairman.*) Would you like to put in evidence what you say at p. 14 of your Report for 1905 with regard to winding ropes and re-hosing?—Yes, I think that might be put in evidence; it is my opinion upon the question of re-capping.

2762. You say "The question of re-hosing or capping winding ropes has been brought before the owners of the larger mines during the year"?—Yes.

2763. Would you like the diagrams, which appear in your Report, to be put in?—It is immaterial.

2764. I think it is only necessary to refer to your Report. Bars or gates at cage ends have been suggested as being a good thing?—I have been trying for two or three years to advise their use, and I mention the subject in one of my Reports, the Report for last year, or the year before. I think it would be a good thing to have bars across the end of the cage, especially in speedy winding. I have spoken also of that point at p. 14 of my Report for 1905.

2765. With regard to the various safety-catches that have been brought to the public notice from time to time, have you had much experience of them?—I have had no experience There are none in use in my district at all.

2766. You have not seen them at work?—No. You refer to safety catches on the cage?

2767-8. Yes. We have had no experience of them?—With regard to safety-hooks, I think there are two safety-hooks in my district which have done good work, and have acted on two occasions. But the owners in my district prefer rather to have good ropes and good tackle, and to change them regularly at certain times.

2769. How long is it since you have had any experience of ropes or chains breaking?—I cannot remember any case of an accident except one, and that was in the district which is now under Mr. Ronaldson. That was an accident which occurred some years ago, when the rope broke with the manager coming up.

2770. Accidents occur in surface sidings, I understand?—Yes, some of these accidents occur through there not being enough room at the top. That has been brought about especially in collieries which have been opened for some years, where the wagons have got very much larger in recent years and consequently the room has been very much less than it was formerly: indeed, in one case in which a colliery has been in operation for some years, they have had to rearrange the whole plant with reference to the question of want of room.

Digitized by Google

Mr. R. McLaren.
17 Oct. 1906.

2771. Do you find any disinclination on the part of the owners to do what you think is desirable to improve their siding accommodation?—No, I do not find it is the case, where it can be done, but in some cases it cannot possibly be done by reason of want of room. I should certainly say in cases of new sidings it is desirable that there should be more room.

2772. Have you anything to say as to accidents in general: for instance, have you any suggestion to make as to anything that can be done by special rules which might be made general rules, to avoid accidents?—Some of the special rules might be made general, as I have intimated already, with reference to shot-firing and timbering.

2773. There are a lot of special rules which you think might be made general rules?—Yes; but I find in my district that the accidents are contributed mostly by two of the counties.

2774. How is that?—It is due to the steep workings and the roof—in Edinburgh and Fifeshire.

Under Sea

2775. I understand that there has been some difference of opinion with regard to the safety of workings under the sea, and I understand you would like to put forward your general views with regard to working under the sea?—Yes. At a particular colliery in my district working within 25 fathoms of the sea-bottom is permitted, and it seems to me unsafe.

2777. Of course that depends entirely upon the kind of sea bottom, I suppose?—Yes.

2778. In that particular case you think 25 fathoms is not enough?—That is so.

2779. Will you tell the Commission what your views are with regard to under-sea workings?—Perhaps you would like me first of all to state the circumstances of the case in question?

2780. Yes?—There are two proprietors, one working far out to the sea and the other working near low water—between low water and high water. The owners who work furthest down thought that there was danger to them by reason of the other people working so near the surface. They complained to the Secretary of State about danger, and he sent on the complaint to me, and I made inquiries and found that in this working to the dip there was a good deal of clay-backs and salt water coming through, and in one case, in particular, 45 fathoms from the surface, there were clay openings—indeed, mud openings—coming right from the surface, and I thought it was dangerous to have this going on, and I suggested stopping the seam that was working within about 28 fathoms or 30 fathoms, in view of these facts. Also the barrier seemed to me to be insufficient; my experience is that if you have barriers too thin, the water may burst through and cause disaster to the men underground. I therefore suggested that this working should be stopped. We discovered afterwards that the Office of Woods and Forests, who have complete control of this matter, have sanctioned 25 fathoms, which is less than any barrier in the district—a neighbouring colliery down to the west has 32 fathoms. I thought that 25 fathoms was too little, but the matter was referred to an expert agreed upon between the Home Office and the Office of Woods, and it was decided that the working should be allowed under certain conditions. It seems to me unsatisfactory that these matters should be arranged between a lessee and the Office of Woods and Forests, and that the district inspector of mines should know nothing whatever about the terms.

2781. You mean it is arranged, so to speak, behind your back, by the Office of Woods and Forests?—Yes; as a matter of fact, we know absolutely nothing about it, and I am perfectly satisfied that had I been consulted in this case I would have absolutely refused to have allowed them to work coal within 25 fathoms of the surface from the very start.

2782. But I understand there has been an arbitration in the matter, and it has been decided in accordance with the views of the Office of Woods and Forests?—Yes, practically.

2783. I understand the mining expert thought that if certain conditions were adopted, the work might take place?—Yes; there are certain conditions laid down, but I have no power to enforce those conditions, supposing I go to the colliery to-morrow.

2784-6. But you can always report?—But by the time that I report there may be damage done.

2787-8. I understand your objection is to the working taking place under certain conditions, which you are powerless to enforce?—Although, of course, the decision has gone against me, it has not altered my view in the least as to safety.

2789. How could those conditions be enforced?—I suppose the only way in which they could be enforced would be by the mineral surveyor of the Office of Woods himself.

2790. But I suppose you could go down into these mines—they are in your jurisdiction—and you could see that these conditions are complied with, and you could at once communicate with the Woods and Forests?—Yes, but they may take up the same position again, and say that after all I am wrong, and that the conditions are being fulfilled.

2791. The question whether you are wrong is another matter: but if you considered that any of these five or six conditions, which are essential to the safety of working, are not being complied with, it would be your duty to communicate with the Office of Woods and Forests, or with the Secretary of State, or whoever the authority might be, with a view to setting the matter right, and, of course, if somebody were sent down and disagreed with you, and thought that the conditions were being enforced, that would be another matter, and you would have done your duty. The question is dealt with by Section 42 of the Coal Mines Regulation Act?—"If in any respect (which is not provided against by any express provision of this Act, or by any special rule) any inspector finds any mine, or any part thereof, or any matter, thing, or practice in or connected with any such mine, or with the control, management, or direction thereof by the manager, to be dangerous or defective, so as in his opinion to threaten or tend to the bodily injury of any person, he may give notice in writing thereof to the owner, agent, or manager of the mine, and shall state in the notice the particulars in which he considers the mine or any part thereof, or any matter, thing, or practice, to be dangerous or defective, and require the same to be remedied; and unless the same be forthwith remedied, shall also report the same to a Secretary of State." Then, being the inspector in this particular case, you know what the conditions are, and you have a copy of the conditions under which the Secretary of State has allowed the working of these mines?—Yes.

2792. Then, if you go down these mines, and in your opinion one or other of these conditions has been violated, it would be immediately your duty to tell the owners that they must discontinue the violation of that condition?—Yes.

2793. (*Mr. Wm. Abraham.*) We have had this point raised two or three times before, and I think we can clear it up now. I understand that what the witness complains of is what we have been complaining of also, namely, that when he learns the conditions, however dangerous in his opinion they may be, all in his power is to report to the Home Secretary or to the manager?

(*The Witness.*) That is all.

(*Mr. Wm. Abraham.*) Has he any power whatever to enforce any recommendation which he may make?

(*The Witness.*) I do not think I have.

2794. (*Sir Lindsay Wood.*) If the inspector thinks there is any danger whatever, he has to give notice to the manager of the mine, and require it to be remedied, and if it is not remedied, he is to report the matter to the Secretary of State, and then the Secretary of State has to appoint an arbitrator to decide who is right.

2795. (*Mr. Ratcliffe Ellis.*) I understand you think the barrier is not sufficient, and you report to the Home Office. The Home Secretary then inquiries into the matter, and finds that the Woods and Forests Mineral Adviser has advised that it is safe, and, instead of going to arbitration under Section 42, he suggests that there should be a third expert called in. That third expert having inquired into the circumstances, has come to the conclusion that it is safe, and that is the view which has been adopted by the Home Office. Is that so?—The Home Office, of course, have accepted the decision; of course, they are bound to, because it was decided. But the question with me is this: Having accepted that, what power have I to compel the

Digitized by Google

owners to carry out the recommendations or the suggestions of the expert? I have none; I do not see that I have any.

2795. Well, you have just the same power as you have under the Act of Parliament to compel the observance of the special rules?—I am afraid not.

2797. (*Mr. F. L. Davis.*) I think your point is that the conditions under which they have to work are not included in the general rules, but that they are some new conditions which the Home Secretary has laid down?—Yes. In view of the expert's opinion I cannot say now that the workings are unsafe; I dare not; they have accepted that. But if I go to the place and find that the recommendations have not been carried out, what power have I to compel the owner to do so? I cannot do it under the Act.

2798-805. (*Mr. Ratcliffe Ellis.*) But does not Section 42 apply? It provides as follows:—"If in any respect (which is not provided against by any express provision of this Act, or by any special rule) any inspector finds any mine, or any part thereof, or any matter, thing, or practice in or connected with any such mine, or with the control, management, or direction thereof by the manager to be dangerous or defective." This is exactly the case—it is not provided for in this Act, but it is a condition of things which you find to be unsafe?—Yes.

2806. Then you can give notice under Section 42 requiring that to be complied with, and if it is not complied with within ten days, and the colliery proprietor does not give notice to go to arbitration (which I should think he never would do if it is a case of a condition clearly laid down which he has not complied with) then he has committed an offence, and you can bring him before the magistrates. Is that not the position?—Supposing I send him notice within ten days, then it would very likely go to arbitration again.

2798-805. (*Mr. Radcliffe Ellis.*) But does not Section condition which he is violating there is not much to arbitrate upon, and you must give the coalowner credit for some little common sense, and suppose that he would not go to arbitration if the matter was clear, then if he does not comply with your requirements within ten days, Sub-section 3 of Section 42 provides: "If the owner, agent, or manager fail, when no objection is sent as aforesaid, to comply with the requisition of the notice within ten days after the expiration of the time for objection, or when there has been an arbitration to comply with the award within the time fixed by the award, he shall be guilty of an offence against this Act, and the notice and award shall respectively be deemed to be written notice of the offence," and then your remedy is perfectly clear—namely, to bring him before the magistrate.

2809. (*Chairman.*) Have you anything to say upon the question of arbitration with reference to the Special Rules?—Yes, in reference to the Special Rules I should like to say that the method of establishing Special Rules is not what it ought to be, especially when a mine has been newly opened. In some cases I find that a mine has been opened, and they have got three months in which to establish Special Rules; then they have a fortnight to put up the Special Rules, and forty days for the Secretary of State to object; that means six months before the Special Rules are established, and you will find shafts being sunk and no rules whatever applying to that mine for six months. I think in such a case where rules have been established for a district the rules should at once apply the moment operations begin, in the same way as the General Rules.

2810. (*Mr. Ratcliffe Ellis.*) Sections 51 and 52 of the Act provide for the establishment of Special Rules?—Yes.

2811. (*Chairman.*) It has been suggested that they should be established in the same kind of way as the regulations for dangerous trades are established under the Factory and Workshops Act—that is to say, that the Secretary of State may make regulations, subject to giving notices and hearing objections?—I think the Factory Act procedure would scarcely apply to a mine; a mine is so very different. But I think it is necessary that for Special Rules there should be same machinery for arbitration.

2812. Some sort of arbitration, you think, is necessary?—Yes.

2813. And you think that it would not be sufficient as under the Factory Acts that the Secretary of State, before making any regulations, should give certain notices and hear objections?—It seems to me that the same objection would apply to that method as applies specially to arbitration—there is a difficulty in getting that done, and time would be lost.

Mr. R. McLaren. 17 Oct. 1906.

2814. (*Mr. Wm Abraham.*) But did you not suggest a moment ago that the Special Rules should apply to new collieries in the same way as the General Rules apply?—Yes, of course, I am now referring to new Special Rules which may be established, such as new Timbering Rules, or Safety-lamp Rules; but the ordinary rules of a district should come into force at once in the case of a new colliery the moment operations begin.

2815. (*Mr. Smillie.*) The Mines Act and the General Rules are at once in force at a new colliery?—Yes.

2816. You suggest that the Special Rules in force in that district should at the same time come into force at that colliery?—Yes.

2817. (*Chairman.*) That the Special Rules which are in force in other collieries in that district should *ipso facto* apply to the new mine?—Yes, the same as the General Rules under the Act.

2818. What is the process now? Supposing you have a new mine started in your district must you have an arbitration, and all the rest of it, before Special Rules apply?—There is not necessarily a case for arbitration. The procedure is that laid down by Sections 51 and 52, and it usually means six months lost at the very start.

2819. So that when you have a new mine opened all the other Special Rules applying to other mines in the district cannot be applied for over forty days?—For nearly six months.

2820-1. (*Mr. F. L. Davis.*) But is that so? Take the case of a company which has two or three mines already existing, and which sinks a new pit. Would they not adopt the same Special Rules?—Yes; but I am thinking of a new colliery.

2822. (*Chairman.*) Then you suggest that the present system is too slow in every case?—It is too slow in a case like this.

2823. That is to say, in the case of a new mine as regards Special Rules at present in force in the district But with regard to new Special Rules in that district do you think the present procedure can be in any way strengthened?—I do not see how you can escape from it, because you do not always get people of the same mind, and, after all, the Mines Inspector and the owners are not infallible, just as the Home Office are not.

2824. So that as regards making new Special Rules you do not suggest any alteration of the present system?—I do not think that anything else can be done.

2825. (*Mr. Wm. Abraham.*) Is it not possible to keep the matter going on for six, nine, or twelve months?—Yes, that is the unfortunate thing; it is too long—that is the objection to it.

2826. (*Chairman.*) Then you do object to the length of time in all cases?—When the time is too long it is very bad.

2827. The time ought to be shortened?—If the time could be shortened for new Special Rules it would be better. The statutory periods for making objections under Sections 52 and 53, I think, might very well be shortened.

2828. Do you not think it might be possible to have a more uniform code for the whole of the kingdom?—I do not think that is possible, because the conditions vary so much in the various districts. You might take some of the Special Rules in all the districts and make them general; but I am afraid you would require to have separate Special Rules for each district, because the conditions vary so much.

2829. With regard to investigation into mine accidents, it has been suggested that inquiry under Section 45 should be more often resorted to than it is. I understand it is very seldom resorted to at present. What do you say as to that?—We have had no experience in my district with reference to that matter. There have been one or two special inquiries held, but they have been held in connection with the Fatal Accidents Inquiry Act.

2830. Under that Act you say it has been necessary to have a second inquiry?—No, I do not say so, but

Digitized by Google

Mr. R. McLaren.

17 Oct. 1906.

in the case of a colliery in which six men were lost by water there was a special inquiry made, and the special inquiry and the Fatal Accidents Inquiry took place at the same time, so that the inquiry was extended on that occasion.

2831. Why should there be a special inquiry in that case?—Six lives were lost through a burst of water, and the Secretary of State, I believe, thought it incumbent to send counsel down to the inquiry.

2832. They always hold an inquiry under the Fatal Accidents Act in Scotland, and not a coroner's inquest?—Yes, of course we have not the same powers under the Fatal Accidents Act in Scotland as you have in the case of an inquest held in England.

2833. (*Mr. F. L. Davis.*) Who is the person who conducts the Fatal Accidents Inquiry?—The Sheriff.

2834. (*Chairman.*) Supposing dissatisfaction is expressed with the result of the inquiry, and they consider (as might easily happen if your theory is correct) that a man might not be asked at the inquiry any question which might tend to damnify him in any way, it seems to me it might very easily be that those inquiries would be ineffective?—Yes.

2835. And that some further inquiry ought to be made?—In some cases it seems to me that some further inquiry ought to be made.

2836. I suppose it would be open to the Secretary of State, notwithstanding the Scottish Fatal Accidents Act, to hold a further inquiry?—The Fatal Accident Inquiry in Scotland is a very flimsy matter altogether, and we do not sometimes get out all the facts as we would like to do.

2837. (*Dr. Haldane.*) That has been altered now?—Yes, but I do not think even that alteration is sufficient.

2838-40. (*Chairman.*) If Mr. McLaren is right it would certainly seem that a second inquiry may be necessary. His statement is that the lawyers in Scotland will not allow you to ask a question on the spur of the moment which might be calculated to damnify a witness unless you give notice.

2841. (*Mr. Wm. Abraham.*) Are we to understand that you are distinctly in favour of a second court?—Yes, I think so, under certain circumstances, if all the facts were not brought out.

(*Mr. Ratcliffe Ellis.*) Under certain circumstances.

(*Mr. F. L. Davis.*) Because the law is different in Scotland.

2842. (*Chairman.*) Then with regard to General Rule 34, as to ambulances; how are ambulance matters dealt with in your district?—Ambulance work in our district is pretty good, especially in Fifeshire. In nearly all the collieries we have ambulance corps, and there is a competition every year for a cup. In other parts of the district they are not so well off, but I have been trying for years to advise this matter to be kept in view.

2843. You consider that matters are going on pretty well with regard to ambulance work in your district?—Yes.

2844. Do you think that mine managers should hold ambulance certificates?—I am strongly of opinion that under-managers ought to do so. That question was brought before the Examination Board some three years ago, and it was decided by the Board that under-managers producing an ambulance certificate should receive five marks, but that their not producing an ambulance certificate should not be a bar to their getting through. The decision, however, was withdrawn on the advice of the Secretary of State. I think under-managers ought to have ambulance certificates, for the reason that they are constantly in the mine, and that the manager is not.

2845. Have you anything to say with regard to rescue corps?—That matter was taken up some time ago; in the month of June, I think it was, we had some men lost by underground fire, and I wrote to the managing director of the Fife Coal Company saying that I thought the time had arrived when we should do something in the matter of rescue apparatus. A committee was appointed, and inquired into the matter. I think you have all received copies of the Report of what was done. I think it is likely that we shall be having a central station, as suggested in this Report, at Cowden Beath.

2846. I think you accompanied a committee of the Coal Owners' Association on a visit to the Yorkshire station, but you did not sign their Report. I do not know whether you would like to make any observations upon it?—I was asked by the committee if I would help them as much as I could, and I said I would, and they asked me to accompany them, which I did.

2847. Is there anything in that report that you would like to draw attention to?—No. I went all through the Report, and it embodies my views.

2848. Now we go on to deal with the question of plans. Under Section 34 of the Act reads: "The owner, agent, or manager of every mine shall keep in the office at the mine an accurate plan of the workings of the mine," and so on. Are there accurate plans of all your mines?—The system in Scotland is that the plans to begin with, in most of the cases, are made from surveys, first of all by the owner himself, and then another survey is made by the proprietor on his behalf, so that there are actually two different surveyors who make the surveys.

2849. But what do you say as to the accuracy of them?—I have never found any case of inaccuracy. Indeed, in the case of a disaster which occurred last February in Clackmannan, I had to examine the plans and to measure them to get a bore put down to some men who were entombed, and I found the plans were absolutely correct. I have no reason to think they are anything else but correct.

2850. (*Mr. Smillie.*) You are now referring to plans which have been drawn up within the last 30 years—modern plans?—Yes.

2851. Not to old ones?—Not to old ones. As a matter of fact, it is a difficult matter to get at the accuracy of the old plans. On one occasion a burst of water took place, and a man was drowned, and we found that the plan was wrong there. It had been put in some 12 years before.

2852. (*Chairman.*) Are any steps taken to verify those old plans?—What steps can be taken? We take no steps, because as a rule, when the place is worked out it is closed and finished, and we have no means of getting down.

2853. So that you are sometimes dependent upon old plans of old workings which may not be reliable, and there is no means of getting out of the difficulty?—That is so.

2854. With regard to ankylostomiasis, does the disease exist in your district, so far as you know?—We have had no case in my district at all, but I took steps to send to the various owners of mines in which foreigners were employed, the report of Dr. Haldane, and it was gone into. The report was also sent to all the doctors, in order that they should watch to see whether any such cases arose.

2855. You are doing what you can in the matter?—Yes.

2856. With regard to the examination system, what do you say as to the working of the Examination Board in your district?—The examination system in our district has worked pretty well; we have had a very large number of candidates. We have had altogether, since the examination began, 2,352 candidates for first-class certificates, and 1,260 candidates for second-class certificates since 1888.

2857. Is the examination in your district supposed to be an easy examination or a difficult one?—I have been looking over some of the papers for the other districts, and I think ours is a stiff examination by comparison.

2858. It is rather curious that you have many more candidates for the first-class than there are anywhere else, and the number of candidates for the second class is the second highest; can you account for that?—That may be explained. The examination is in the month of May, which happens at the time that the various mining classes and scientific classes are closed, and the students come up at once. Then, again, the examination being in the month of May, a very large number (about 12 per cent.), come from the north of England to be examined, seeing that May is a holiday month.

2859. But if May is a convenient time, why do not other districts examine in May?—I cannot say. But we certainly get the pick of the students from the various classes.

Digitized by Google

2860. It has been suggested to me that candidates go in great numbers to the districts where the examination is the easiest?—I do not think that can be the case in East Scotland.

2861. (*Mr. F. L. Davis.*) They are mostly Scotsmen or North-country men?—They are either Scotsmen or good North-countrymen.

2862. (*Chairman.*) In your examination do you make a practical knowledge of fiery mines compulsory?—We do. No candidate can possibly pass unless he has a knowledge of fiery mines. As a matter of fact, the Board some years ago passed a resolution that nobody was to be allowed to sit unless he had a knowledge of fiery mines, and that has been carried out strictly.

2863. That is to say, that first of all they must have a practical knowledge before they are allowed to sit for the examination?—Yes, that they have five years' practical knowledge of mines, and they must have passed some time in a fiery mine. As a matter of fact, I know, having been a teacher for many years, that very many students left Fifeshire and came down to the Hamilton district to work in the fiery mines in order to obtain some knowledge of what was necessary in a mine giving off gas.

2864. Do you think it is desirable that there should be a uniform standard of qualification all through the country?—I think that is not desirable. I would suggest, however, that if such a change were to take place it might be as well to have a general examination on the scientific side, and that those who passed and qualified on the scientific side might then be sent down to be examined in the various districts by the various examiners.

2865. That is to say that if a man wanted to work in any particular district he should first of all get a scientific pass, say, from any district where he happened to sit for his examination, and that then, before he was allowed to work in any other district, he should go through a special examination for that district?—Yes. He should be able to pass in the scientific parts of ventilation, sinking, fitting, pumping, engineering and electricity, and after having passed and satisfied the examiner upon that, he should sit then for the practical side in his own district.

2866. In the district in which he intended to work?—Yes.

2867. Then would he be able to go from his own district to other districts—would that free him for all the other districts?—It might be left to him to suggest what district he would like to be examined in.

2868. That is to say, for the practical examination?—Yes.

2869. Supposing he passed that examination, would he be able to go from district to district?—Yes, I think so. So far as my opinion is concerned, I think anyone is enabled to pass from one to the other, both with regard to knowledge of working and knowledge of fiery mines.

2870. Then you would suggest that if a man sits for examination in your district, and then goes to another district, he should submit himself to further examination in the district to which he is going?—No; I misunderstood the question. It would not be necessary. If he has his certificate he should be able to take his position as manager in any district.

2871. (*Mr. F. L. Davis.*) I understood it is only if there is any change made that you would make this suggestion?—Yes, if there is any change made.

2872. You are quite satisfied with the present arrangement?—I am.

2873. (*Chairman.*) With regard to metalliferous mines, do you think that managers of metalliferous mines ought to obtain a special certificate?—So far as I see, I do not think that is necessary. There are coal mine managers managing some of the metalliferous mines in my district.

2874. Then do you not think it necessary to give special certificates for metalliferous mines?—I think not.

2875. If such certificates are given it would be necessary in the case of metalliferous mines to classify them, because they are very different?—Yes, they are very different to coal mines.

2876. What about the state of things in your district as to the desirability of experience of foreign mines?—We have had several applications from persons who have had experience in foreign mines. There appears to be nothing against experience acquired by a man in foreign mines, provided that that experience is similar to that which would be obtained in this country.

2877. I suppose one difficulty would be that it would be rather difficult to find out whether a man had, in point of fact, *bona fide* worked in a foreign mine?—Yes.

2878. You could easily find out whether he had *bona fide* worked in an English mine, but not so easily in the case of a foreign mine?—Yes, but if he did not satisfy the examiners he could not pass in any event.

2879. No, but the point is whether he should be allowed to sit at all, having had experience only in a foreign mine?—Where the examiners of the Board are satisfied that a man has had experience in foreign mines, I do not see why he should not be allowed to sit.

2880. With regard to the Colonies, you would say the same thing?—Yes.

2881. (*Mr. Smillie.*) Is it left now to the secretary of the Examination Board, who has charge of the papers, to satisfy himself?—Well, he usually sees the candidates the day they sit, and he satisfies himself that they have the proper experience.

2882-4. (*Mr. Cunynghame.*) You said you would like a little assistance in dealing with the new Electricity Rules?—Only so far that if any expert point came up we might ask the assistance of Mr. Ram.

2885. That would satisfy you?—Entirely.

2886. You tell us you would be in favour of a certain amount of increase in the inspectorate?—I think it would be advisable if it could be done.

2887. Could any of that increase, in your opinion, be properly made by appointing—and answer thoughtfully—some kind of working-man inspector? Let me indicate the sort of things he might do: for instance, might a working-man inspector inspect collieries in certain cases under you? Could you usefully employ a working-man inspector to see that the planks, ropes, and things were properly set in a quarry?—If a working-man inspector was able to draw up an intelligent report he might be able to do it.

2888. Could you find an intelligent man—not possessing the capabilities of a regular inspector—among working men, capable of drawing up such a report as would be useful?—I think a man might be found to do that.

2889. Then with reference to the men's inspection: I suppose one reason that the men do not inspect more—at least it was suggested to me, and I should like to put it before you—is that if any particular section of men feel that there is a danger, and they are alarmed about it in the mine, they mention it to the fireman, or the people in authority, or if necessary to you?—Yes.

2890. In many cases, I suppose, the men feel that they really get the thing remedied without the necessity of going through an inspection?—That is so. As a matter of fact, when they feel aggrieved they send word to me at once, and an inspection is immediately made of the whole section, even if the letter is anonymous.

2891. Does that not explain the reason, in many instances, that the men get what they want in the way I have described?—I think that probably explains a good deal of it.

2892. You have told us that the business in your district goes on very well without fines?—It does.

2893. Then how is it there are not an unusual number of prosecutions in your district? I mean the average is not larger than the rest of England or Scotland, I think?—I explained in my evidence that hitherto owners have thought that no prosecution should take place unless by the inspector. We are trying to get them to understand that after all the discipline of the mine rests not with the inspector but with the manager.

2894. You hold that the manager must, if necessary, prosecute?—Yes, I always insist upon that, and tell them so.

Digitized by Google

Mr. R. McLaren. 17 Oct. 1906.

2895. Notwithstanding, the prosecution by owners of workmen are not larger than the normal amount. You were asked why you thought it could be carried on without fines, and you said because the power of prosecution existed—but there are not an abnormal number of prosecutions?—No, but the prosecutions have been increasing within recent years owing to the fact that I have insisted upon the owners prosecuting when there has been a bad breach.

2896. Yet in Scotland the number of accidents from explosions are quite abnormally large?—They are very bad indeed.

2897. Do you not think sufficient men are prosecuted in reference to the explosions?—I think that probably the owners are too lax in prosecuting when they ought to do so, and I am trying to get that remedied as much as I can by insisting upon prosecution where a breach has taken place.

2898. It comes to this, that they do not fine on the one hand and they hardly ever prosecute on the other?—That is a fact—they hardly ever prosecute on the other hand.

2899. Is there any deterrent that the owners resort to, such as suspension and so on?—Sometimes they suspend a man for a week or a fortnight, and sometimes they suspend him altogether, if there has been a bad breach.

2900. But is not suspension sometimes worse than having to pay a fine?—It is no good at all.

2901. Does it not throw him idle for a fortnight, loafing about the place able to earn nothing—and would it not be better in some cases to fine him and let him go back to work?—It might. A miner is the freest man in the world, and as a matter of fact if a young man is suspended he simply goes to the next colliery and gets work.

2902. That is not a very desirable system, surely, because, mark you, the breach of which he has been guilty might have put many lives in danger—take, for instance, the case of not setting his props properly, and so on?—That is the unfortunate part of it. It is hard to say what can be done in a case of that kind unless you prosecute.

2903. Then, again, in the case of prosecution, does it not involve the loss of a man's work, in any event, whether he is found guilty or not, and the bringing of the firemen and other people down to the court instead of their being in the mine, where they ought to be?—It involves that certainly; but I think a prosecution has the effect of deterring men from committing a breach when a fine might not.

2904. Supposing you had the French system of putting the whole proceeds of the fine to a fund for the benefit of the men, do you think that would a little alleviate things? Do you not think people would say, "Well, the fine is inflicted, but we get the benefit of it"?—That might help.

2905. However, you say the fining system is not popular?—It is not popular amongst the men at all.

2906. They do not feel it as a sort of deterrent?—As a matter of fact they do not feel it, because it is never done except in a very few cases that I have come across.

2907. You are aware that even among the men there are conflicting views as to the machinery in reference to this matter?—Oh, yes.

2908. You said something about the Scotch Fatal Accidents Act, 1906. You heard the Chairman read the words of the Act. Surely, no one who was presiding—in the face of the words that the jury are to find "to whose fault or negligence the accident is attributable"—would attempt to prevent a question being asked about faults or negligence right on the spur of the moment?—As I stated, the Procurator Fiscal objected, because, he said, he had not given notice to the man who was to blame.

2909. Was it not this, that it was thought fair if you knew it beforehand that you should tell the man so that he might think it over, and come prepared to answer any points that were put to him?—I think that is fair, and if the Procurator Fiscal did not tell the man, the fault did not rest with me.

2910. Surely where a public official is to be blamed, it is only fair to say: "Now, I am going to say it is your fault, and you can think it over, and you can see if you can get your friends to come forward and give evidence for you"?—If it is possible to do so, but it might not be possible.

2911. It certainly does not seem to me that the Act is in any way to blame in reference to that matter. It is a small thing you are putting forward, apparently?—It has worked so badly in the past, as probably Mr. Smillie can say, that I am rather afraid unless the Sheriff takes a different view something must be done.

2912. Are they in the habit of actually stopping you when you are asking a question tending to show whose fault it is?—Under the old Act they did certainly.

2913. Under this Act?—Under the new Act we have not had time.

2914. I understood you to refer to a case which took place yesterday under the new Act?—Yes, that difficulty arose yesterday with the Procurator Fiscal.

2915. Was it under the new Act or the old Act?—Yesterday's complaint was under the new Act.

2916. You were stopped from asking a question tending to show whose fault it was?—Yes, the Procurator Fiscal objected to my question.

2917. What was your question?—My point was that this man was responsible as the manager for seeing that the place was supported on the sides.

2918-9. What was the question? Whether he thought he was responsible?—No, I asked him, "Being the manager, are you not responsible for seeing the roofs and sides are supported in the terms of General Rule 21?"

2920. And then, I suppose, the Procurator Fiscal interfered and said he objected because it was not fair to the man, as he had not had notice. Can you tell us what he said?—He said: "I object to the question on the ground that this man has not been told by me that he is likely to be blamed."

2921. They thought it unfair because he had not been warned?—Yes.

2922. Now about the Special Rules, I suppose you are aware of the method in which the Special Rules are made?—Yes.

2923. Those Special Rules are made in theory, at all events, for each individual mine?—They are.

2924. You think it would be a better system if we could bring them into force for all the mines of the district, like the Factory Act, by one single operaton?—I think I stated that certain Special Rules might be adopted for all the mines, and might be brought into the General Rules, but that each separate district would require rules apart from that.

2925-6. Each mine is dealt with separately under the present system?—I think I stated that I thought the system of adopting Special Rules for each mine was a mistake, and that we might adopt a system that when the mine started in a district the Special Rules should at once become law as well as the General Rules.

2927. (*Chairman.*) I thought the Special Rules applied to all the old mines in the district. Do you have Special Rules attaching to particular mines?—In my district we have three sets of Special Rules, but they are practically all one. They must go through the procedure of establishing the rules.

2928. I thought the Special Rules were applicable to all the coal mines in the district?—So they are after they have been established.

2929. In point of fact, I understand in no district would any particular coal mine be subject to any Special Rule that was not applicable to every other coal mine?—Practically that is so.

2930. (*Mr. Cunynghame.*) Does not this difficulty arise in practice, that if you want to make any Special Rules you have to give notice to every single coal owner in the district, and if you go to arbitration each single owner may appoint a different arbitrator, so that you may have as many arbitrations as there are collieries?—That is so.

2931. And has that not been averted by the wise action of the owners in acting together?—Yes.

(*Chairman.*) It must be taken the same Special Rules do not apply to all coal mines in the same Inspector's district.

Digitized by Google

2932. (*Sir Lindsay Wood.*) There are many cases where the Inspectors' districts are divided into smaller districts, and where there are as many as two or three sets of Special Rules?—I have three sets of Special Rules, but practically two of them are only some additional rules; and then the Haddington Rules are a little different in reference to their numbering, but practically they are the same.

2933. (*Chairman.*) In your district you have practically two sets of rules?—I think one set is applicable to all mines—except, I think, five collieries—and they are under slightly different rules.

2934. (*Mr. Cunynghame.*) You told us it would be an advantage that some of the rules, which are pretty common over the whole Kingdom, should be now incorporated in the General Rules?—Yes.

2935. I suppose that is because the art of coal mining has improved since the General Rules were drawn up in 1887?—Yes.

2936. Would there not be this disadvantage, that as soon as they were made and put into the Act they would be impossible of alteration except by Parliament?—That would be so.

2937. Would it be as well to give the Secretary for the Home Department some power of modification of the rules where they were found not to act, or were badly drawn?—From time to time I think it might be advisable.

2938. Let me instance the case of a shot not having gone off—it was said not to have gone off because it went off the next day?—Quite so.

2939. You want to put in the words "should fail to go off or missfire"?—Yes.

2940. That is an instance in which the Secretary of State would be able to patch up a rule of that sort which was insufficient?—Yes, and I do not think there would be any objection to that in the case of the owners.

2941. Now as to the manager. You do not propose to give a dual authority in the mine, so that the agent shall have authority and the manager also?—No. But I know of a case where an agent has stepped in and quietly prevented the manager from carrying out the provisions of the Act.

2942. You would not propose to remedy that by putting the manager above the agent?—No, but so far as a prosecution is concerned, or the provisions of the Act are concerned, I would put the agent and the manager upon the same footing in reference to liability.

2943. Supposing the agent said to the manager: "You must mind and introduce safety lamps into this mine," and I will suppose that the manager did not do it, but the agent went off under the impression that he would do so, and an accident arose—you would not prosecute the agent?—Not in that case, because he would be able to prove that he had done what was absolutely necessary.

2944. It is only where an agent is to blame that you propose to prosecute him?—Yes, and I think that tends to this, that if there was some responsibility placed upon the agent he would very likely see that he did not do anything to interrupt the safe working of the mine.

2945. Where an agent is to blame, can he not be prosecuted?—It is a difficult matter to get at that.

2946. According to the law he can be prosecuted?—Yes, but the difficulty is to prove it.

2947. Very likely. I only want to see exactly what it is. At present it turns out that the agent can be prosecuted if he is to blame. If he is not to blame you do not propose to prosecute him. What is the change in the law you want to bring about?—The change in the law that I think would be necessary would be a case of that kind. Meantime, if the agent proves that he appointed a manager, that is sufficient to exonerate him.

2948. Who says that?—I think that is in one of the cases we have had.

2949. You mean that an agent, however much to blame, even if there is gross negligence, if he has appointed a manager, gets off?—Yes.

2950. It takes me by surprise to hear that?—I think in one of the cases I read there was something about that: that if the agent proved that he had taken all reasonable means he got off.

2951. That is in the Act. Suppose the manager is in fault, and you go at the agent; the agent can say, "I knew nothing about it. I appointed a competent manager. I am not the least guilty myself; and that is all I can say." Ought that not to be a good answer. Is it enough if you appoint a thoroughly competent man and give him instructions, and do your best to see they are carried out?—That would seem to be quite enough, but the whole thing is that very often they appoint a competent manager, and they so arrange matters that the manager does not get his way, but they shield themselves behind the manager.

2952. Well, there is not much more that we can do, is there, Mr. McLaren, upon that subject?—It is a difficult matter, I grant you, and it is just a question for legal men like yourself to decide.

2953. I suppose your impression comes to this, that as a matter of fact agents have often been able to get off when in reality they deserved to be punished?—As a matter of fact I know of half a dozen cases myself where they got off when they really should have been punished, but we could not get at them.

2954. Do you make any suggestion as to how you could get at them?

(*Mr. Wm. Abraham.*) Let the agent be a practical man.

(*Mr. Cunynghame.*) That is a different thing.

(*Mr. Ratcliffe Ellis.*) He means they did not prosecute because they thought there was not a case, as I understand.

2955. (*Mr. Wm. Abraham.*) Is it not a fact that gentlemen are appointed agents at collieries who have no real practical knowledge of the working of a colliery?—It is a well-known fact that that is the case.

2956. (*Mr. Cunynghame.*) If they get off at present, not knowing mining, would it be remedied if they had a knowledge of mining and still were not careful?—It would not meet the difficulty.

2957. You think it would be a good thing that agents should have some knowledge of mining?—Yes, I think so.

2958. Would that not only take the question a step further, because the mineowner who wished to regulate the affairs at the mine regarding price and things like that, and not the practical working of the mine, would appoint an agent, and a manager over the agent, and a controller over the agent again, and you would have a controller, and you could not hit him?

2959. (*Mr. Ratcliffe Ellis.*) It is simply, then, that he is not bound to appoint an agent, and there would be no agent at all?—We have cases at the present time where the agent is a practical man, and also takes charge of the commercial department, and I may say in those cases we have no difficulty with them at all.

2960. (*Mr. Cunynghame.*) It comes to this, rather: it is an expression of opinion that the owners ought, in selecting their agents, to see that their agent understands a good deal of the practical working of the mine instead of merely the money part of it?—That is my view.

2961. You cannot suggest any exact change in the letter of the law as to how that could be brought about?—I cannot.

2962. Now about watering in mines. Are the mines in your district any of them artificially watered?—I have only two mines that have any dust in the roads, and those are watered.

2963. Are they watered all along the roads, or in sections?—The whole section of the roadway that is dusty is entirely watered.

2964. How long is the whole of that roadway, in the particular mine you are thinking of, from one end to the other?—The portion I have in my mind just now is about, I should say, 300 yards.

2965. The portion that is watered?—The portion that is dusty.

2966. How long is the whole roadway?—That is about the length of the whole roadway.

2967. How is it done?—By means of pipes.

2968. Do you know how much water is used there daily?—I could not say.

Digitized by Google

Mr. R. McLaren. 17 Oct. 1906.

2969. Have you looked at the dust in that wet mine, and do you ever find it dry in spite of the water?—I fancy I have sometimes, when there is too much water put on, found some dry dust floating on the top of the water.

2970. How does the water reach the dust on the top of the props, and so on?—In this case they have taps every 50 yards, and they have a hose 25 yards long, and that is taken and swished all round about the place.

2971. Roughly, how often is that done?—I should think probably twice a week—not more. It has been damp every time I have been there.

2972. That is not a very costly and onerous thing to do?—In this case it is not costly. In other cases they use a water-chest with a perforated pipe behind.

2973. I do not ask you any more questions upon that matter, because you have fortunately a district where there is so little dust?—We had a good portion in the western district, which was handed over to Mr. Ronaldson, and the same system was adopted.

2974. As to this cap on lamps, of course you concede that when there is a dangerous quantity of firedamp present—I will come to what that means in a minute—precautions ought to be taken?—No doubt.

2975-6. Would it be possible simply, instead of using the words "when there is a dangerous proportion of firedamp present," to say "when there is a cap upon a lamp"? I can quite understand learned counsel for the prosecution asking "What is a cap?" and "What is the character of the lamp?" Would it do to put in the words "A cap upon a lamp"?—That would be rather wide, because you can get different caps upon lamps—for instance, by burning spirit instead of oil.

2977. And can you not by a skilful mixture get no cap at all upon a lamp where there ought to be a cap?—I have never tried that, I must say.

2978. If you had merely the test "a cap on a lamp," in many cases the precautions would not come into play when they really ought to?—No; it would require to be a special lamp burning a special oil.

2979. Would it not be better to have the general words "whenever there shall be a dangerous quantity of fire-damp present," and then leave to the different districts the definition of the cap according to the character of the lamp used?—My own view is, whenever there is gas found in a mine, I consider that to be a danger, and a remedy should be applied.

2980. What do you mean by finding gas in a mine, because some people say they can find gas everywhere, but only very little of it. You see you have to prosecute, and that is the point?—Well, you might go with an ordinary Davy lamp, and you would not get a cap; you only get the flame drawn a bit. In that case I would say it would be unfair to say there was gas. There is a trace of gas, but there might be no danger although a trace.

2981. Your words would be "whenever more than a trace of gas is found"?—Yes.

2982. The present words are "when there is gas amounting to a dangerous quantity"?—Unless you could define it in reference to a cap of some kind. I am not sure whether it would be any better than at present.

2983. We have had the greatest difficulty in seeing how a rule could be laid down which would be certain and easy to observe. I suppose if a fireman could be provided with an absolutely certain lamp—for instance, like a Clowes lamp?—Well, a Clowes lamp takes so long to be manipulated, and it requires a special man to do it.

2984. Could there not be a lamp which would be safe —an Umpire lamp?—A Clowes lamp would be, certainly. Any safe reliable lamp might be taken.

2985. It is not a case of safe and reliable, but it is a case of a standard. Do you see your way to suggest the use of a standard lamp in a mine, and to say when that shows a cap it is dangerous?—That might be provided for by means of testing and getting the best lamp and the most reliable lamp to show the gas.

2986. A fixed type of lamp?—Yes, a fixed type of lamp, and if that showed a cap that would be sufficient to withdraw the men.

2987. You would compare the lamps ordinarily used in the mine with that lamp, and see the caps on them and adopt some mode of comparing them?—Certainly you should test all the other lamps.

2988. Do you not think the time has come for some Government test of types of lamp?—I do.

2989. So that there should be forbidden to be used, for instance, by the Secretary of State, within a reasonable time, all lamps that were not up to a certain type of safety?—That is my opinion.

2990. That test ought to be not merely for inability to set light to fire-damp, but also inability to be opened?—Yes, inability to be opened.

2991. And I suppose you would have in that test at the same time a test for draughts?—Yes; make a full test on all the points.

2992. With a certain type of lamp?—Yes.

2993-6. Of course in addition to that there would be the proper examination of the lamps before the men used them, including the blowing on them and all those proper precautions?—Yes. The same rule that applies to the present lamps just now would apply to the new lamp.

2997. (*Sir Lindsay Wood.*) As to the inspection of mines, you say you inspected all the mines in your district last year?—Yes.

2998. But not all the pits?—No.

2999. It would be only a small proportion of the actual workings that you inspected?—The district is pretty large, and we managed to get through all the mines, but certainly not through all the seams and all the pits.

3000. Do you think it is necessary that all working places should be examined once a year?—So far as this: I think it is best to see part of every working mine every year, if possible.

3001. Would it not tend to relieve the manager of responsibility if such inspections always took place?—There is that difficulty. I found if an inspector went to a place and did not happen to speak about anything wrong, and then something happened afterwards, they would turn round and say: "Oh, the inspector was here, and he did not say anything about it."

3002. That would be rather a serious objection?—That would be a serious objection.

3003. You said also you thought the inspection between shifts was not carried far enough, and the ways were not examined?—I am afraid not.

3004. How far do you mean by the "ways"? Do you mean the main ways all the way from the shaft to the working place?—I mean every roadway on which persons have to work or pass during the day—the drawing-road from the shaft.

3005. In many cases that might mean three or four miles?—It might.

3006. You recommend they should be examined every day?—Yes; the Act says so.

3007. The working-places have to be examined?—Yes.

3008. Where the men pass and re-pass, but not the main ways between the station and the shaft?—The station, in most of the cases in my district, is the shaft bottom, and in that case it would include every foot of ground.

3009. I thought the station was the place where the tubs come to, when they take them away from the hewers, or coal-getters?—No, that is not the station.

3010. But from the station to the shaft means a very extensive examination three times a day of the main roads, which, in many cases, are three miles long. Are there many accidents that occur in the main roads from falls?—Last year, 1905, a number occurred on the main roads: I can give you the figures. On the roadways there were twelve out of thirty-eight that occurred last year.

3011. Could those accidents have been prevented by further inspection than you have already?—I am not sure about that. I am very much afraid that a large number of the accidents could not be prevented by any inspection.

3012. Then there would not have been very much good obtained by further inspection?—In some cases, no.

Digitized by Google

3013. It is supposed to be simply and purely an accident?—Yes.

3014. You said that you considered prosecutions for breaches of discipline better than fining?—I think they are.

3015. But are there not many cases of trivial breaches which would be better met by a fine than by the heavy penalty of prosecution?—The way in which I look at the matter is this, that although that may be so, still men do not like, as a rule, to go before a magistrate, and it certainly deters men from committing breaches of the rules if other men have been taken up and prosecuted.

3016. I quite agree, in serious cases, or comparatively serious cases: but there are trivial cases which you are bound to take notice of in order to secure sufficient discipline, which might be easily satisfied by a fine. Do you think a fine would be sufficient in those cases?—I think that in a case of that kind, if it was a trivial case, a man might be cautioned, and something else might be done instead of fining.

3017. Without going so far as even fining?—I do not think I would fine.

3018. What is the objection to fining?—My objection to a fine is this, that you fine a man, and he forgets all about it in a very short time, and does just the same thing again.

3019. Would he not do the same thing if you cautioned him?—No, I think not. If you cautioned him and told him that on the next occasion he would have to go before the court, he would not do it.

3020. In regard to inspection of the working-places, you said you thought there should be a man appointed who should be responsible for setting the timber and responsible for the safety of the working-places?—Yes; I think that would tend to reduce accidents at the face.

3021. What is the system in Scotland?—The system in Scotland is that the men themselves attend to their own propping, and the fireman who goes round the faces once a day is supposed to see that that timber is put up; but as a matter of fact if it is a big district he cannot be there for hours.

3022. What you recommend is rather the system which is adopted in Durham?—I do not know exactly the system in Durham, but if the system adopted in Durham has been such as that, I think it is a good thing.

3023. The system in Durham is that the deputy himself sets all the timber in the working-places, and that the man has to take the responsibility in the absence of the deputy?—I think that in the case of a man having charge of setting the timber, his district should be of such a size that he should be able to get along the faces several times a day.

3024. You say there is a difficulty in regard to Rule 8 in putting in lamps partly because the idea is that they will not be taken out again?—Yes.

3025. I think you admit that that is a fallacy?—That is entirely a fallacy.

3026. Might there not be an objection also if the ventilation is over a large district? The rule is that you must have lamps put in if gas is found on the return side of airway?—Yes.

3027. If you have a very large district, that would mean probably half a colliery?—Yes.

3028. But if there were smaller ventilating areas, there would not be that objection?—No.

3029. Would that, in your opinion, remove the objection to putting in lamps?—If there was some such rule as would provide, where there is a very small quantity of gas, that a lamp might be allowed for the time-being in that one place without having to put in safety lamps on the return side, I think that would help to reduce the accidents from small ignitions of gas.

3030. You mean limiting it to a rather smaller area?—Well, probably a rather small area.

3031. You said, I think, that in firing shots the rule was that there should be only two shots fired at one time?—Yes, that is a rule which was drawn up; I got the permission of the Home Office to meet the owners, and we drew up that rule for the shale mines only, in Scotland.

3032. I was going to ask you how you could do that in a longwall face?—In a longwall place I do not know that there are more than two shots fired at any time.

3033. What are the longwall faces?—Our longwall places are about 12 yards long, as a rule.

3034. I should call that a short face?—In some places in Llamannan districts they are 22 yards. But there is no blasting at all required for the coal; it is all taken down by the wedge.

3035. Then it is only to the manner of working that you are referring?—Yes, that is in the "stoop and room" workings, and where it is steeper they are allowed to have four.

3036. For what reason?—Well, you see it is very steep, and it is very difficult to get back again, and it is thought safer to light four shots than to go back to light the two others; in the case of shale falling upon him he might be injured.

3037. Then they are not lit by electricity?—No, it is the ordinary tape fuse.

3038. Would it be safer to use electric fuses?—We have never used electricity in the shale mines, and we get on well under the ordinary system.

3039. In this case it is exceptional?—Yes.

3040. It is only to special cases that you are referring?—Yes, that was to save accidents. There have been numerous accidents through the men lighting too many shots.

3041. (*Mr. Cunynghame.*) But I understood you to tell me that in coal mining you thought a man ought not to be allowed to fire a large number of shots at the same time?—No, I think not. I think there should be a rule similar to that in force in the shale mines, but we have no rule of that kind.

3042. (*Sir Lindsay Wood.*) For what reason?—We find that when a man lights too many shots he has sometimes to delay, and he is too long in getting away from the second shot, and the first shot takes effect, and explodes upon him, and he gets killed or injured.

3043. That is in firing with the ordinary fuse?—Yes.

3044. With electrical firing you do not run that risk?—No.

3045-6. There is no danger in firing more than two shots with electricity provided the men are out of the way?—Provided the men are out of the way there is no danger in firing more than two.

3047. (*Mr. Wm. Abraham.*) You said you had ten counties in which you had to inspect coal mines?—Yes; two of them are very small.

3048. How many separate mines would you have in those ten counties?—I think last year there were 274.

3049. And by a special effort you made one inspection of all those in the year?—Yes.

3050. But not of every separate pit?—No; I should explain that my system is to inquire into every accident that occurs in the district.

3051. Quite so, but how do you satisfy yourself as to the condition of the mines which are not inspected?—As to the pits?

3052. Yes?—Of course we have no real means of doing that unless we go down, and we make it a rule to inspect the pits that were omitted on the previous occasion; for instance, we have gone to the pits this year which were omitted last year.

3053. So that it may be that notwithstanding your special effort last year there are a number of pits that you have not inspected at all?—Oh yes, that is so.

3054. Then what is your system of satisfying yourself as to the condition of such pits?—My system is this: if there has been an accident, after inquiring into the accident we usually take either the section or the whole seam, and make a thorough inspection of it to see that the requirements of the Act are carried out.

3055. Then you take the worst ones first?—We find that the visit of the inspector has a great effect upon them in regard to putting things right in the other district.

3056. But as a matter of fact, notwithstanding your special effort, there are a number of pits in your district which were not visited at all?—That is so.

3057. I think you have made suggestions for the appointment of another class of inspectors, not of the

Digitized by Google

Mr. R. McLaren.

17 Oct. 1906.

same qualifications as yourself or as the assistant inspector, but still practical men, such as we have a number of who have passed a sufficient examination of competency. Supposing you have two or three of those to send here and there, would not that assist you very materially?—Certainly it would.

3058. You have made a statement in answer to my friend with regard to too much inspection, but if an inspector had been to a place and had not pointed out some dangerous elements which may have been there, that may have been made an excuse, of a reason for the manager not attending to it, or, if something happened, saying that an inspector had been there. Does that not prove that an inspector, such as you are now, with his assistants, is not able to make a thorough examination of all these mines?—I do not know that it proves that, but it just proves this: that managers think that if an inspector is visiting a mine and does not speak about a matter some responsibility is taken off their shoulders.

3059. Yes, but would not it be a very rational thing to say that because you have such a number of collieries to attend to you have not time to attend to all the minute dangerous elements in such a way as you would like to?—As a matter of fact, if we cannot get over all the pits we cannot see all the defects.

3060. In your opinion is not the fact that the Mines Act names the owner, agent, and manager, as being the persons responsible an element to create safety, seeing that you have those three men responsible?—It ought to be, but I regret to say that I do not think it is an element of safety having those three men.

3061. But do you not think that is the object of having them in the Act—that they are an element of safety?—Apparently the object of naming them in the Act was to make them responsible.

3062. Then if an agent is appointed who knows but very little of the practical workings of a colliery, he would not be a person fit for great responsibility?—Well, the fact is this—it is accepting a responsibility which he knows nothing about.

3063. Then what about appointing the manager the agent as well as his being the manager?—I suppose in the meantime it is not necessary that every mine should have an agent, and the manager is only to manage the mine, so that I suppose the whole responsibility would rest upon him.

3064. But supposing he is managing a mine with 10,000 men; that would be a sufficient number of men to require the owner to have a manager and an agent?—Yes, I should think so.

3065. Do you think that the spirit of the Act is carried out if one man is appointed agent and manager?—I should say that it is putting too much responsibility upon that one man.

3066. My friend Mr. Ellis has put it several times that it is not obligatory that an agent should be appointed at all; but is not that evading the spirit of the Act really?—I believe it is not obligatory, but whether it is evading the Act or not is another question which I do not think I can properly decide.

3067. But would it not strengthen the Mines Act, at any rate, if it were obligatory?—Yes, it would strengthen it if the agent appointed was a practical man and knew his business.

3068. Then you agree that it is necessary with large mines, to say the least, to have an agent appointed in addition to the manager, and that that agent should be a practical man?—I would not say it is necessary; I would say it is very desirable.

3069. Supposing in a colliery explosion the man who is the agent and manager is killed, who then is responsible?—The owner, I suppose, would be.

3070. And he, of course, may not have known anything about the matter?—As a rule very likely not.

3071. Do you think it desirable that the enginemen should have certificates of competency?—So far as I see at present, I think not. I think the enginemen are at the present time a very respectable class of men, and they seem to know their duties. I do not think it would make them any better men if they had certificates.

3072. (*Mr. Ratcliffe Ellis.*) With reference to these inquiries after accidents, is your complaint that in the inquiries now you cannot get out all the facts relating to the accident?—It is.

3073. Or is it that you cannot get punishment awarded to somebody who you think is responsible?—My complaint is not so much upon the question of punishment as the question of getting out all the facts. Of course, you understand I cannot speak as to what may happen under the new Act, but under the last Act that was the complaint I had to make.

3074. In that case, if the inquiry is such that all the facts are not elicited, then it is competent for the Home Office to hold inquiries under Section 45, which would elicit all the facts?—Yes. I think that none of the cases I have had were of sufficient importance to ask for that.

3075. Of course, if it is not of sufficient importance, the inquiry would not be held, but if you thought that the result of the inquiry was that all the facts were not brought out, there is a means by which an inquiry can be held now by which all the facts would be brought out?—A second inquiry.

3076. Yes?—That is so.

3077. So that there is required no provision with reference to that—that is, already provided for?—I think that is so.

3078. Now, with reference to the punishment, that is entirely in your own hands, is it not? You can take proceedings with the sanction of the Home Office against anybody?—Yes.

3079. So that so far as procedure for obtaining punishment is concerned, you do not want an amendment for that?—No.

3080. With reference to the question of inspection, what do you understand to be meant by a "working man"?—That is a very difficult question; I suppose we are all working men.

3081. I understand you to have said that you approve of the appointment of working men?—If a working man, as a practical man, was able to draw up a report in reference to the various points connected with the Mines Act, then I do not know that there would be any difficulty.

3082. Why should you exclude a man who was quite able to do that, but who was not what you would call a working man?—I would exclude neither of them.

3083. But if you thought that a class of inspectors should be confined to working men, you exclude the class which does not fall within that description?—Of course, before any man could be appointed to that position, I should say he would require to have some knowledge of mining operations.

3084. I agree, but not necessarily that he should be drawn from any particular class?—As to that, it is a question whether he should be drawn from a particular class or not, but certainly a man would have more knowledge as to mines if he had been a practical mining man than if he was a man who was not.

3085. Do you mean a man who has actually got coal or a man who has had experience in a mine—because, I suppose, every inspector is not necessarily a man who has got coal, but he has had practical experience in the management of a mine?—I would say a practical man, but I would not disqualify him supposing he had been a miner.

3086. No, it is not to disqualify him, but is it to qualify him?—Not necessarily so. Of course, there are men who are working in the mine who would never get coal at all.

3087. I ask you, is a man who has not got coal to be disqualified from these positions?—Certainly not.

3088. Then, I suppose, when you say you would appoint a working man, you mean to say a man who has not actually got coal, but who has a practical knowledge of working mines?—Yes, he would be eligible.

3089. What are these inspectors to do?—The additional inspector would undertake practically the same duties that some of the assistants are taking now in making underground inspections.

3090. He would be an assistant inspector?—Yes.

3091. Are either of your present assistant inspectors men who have got coal?—I cannot say as to that.

3092. Do you think that they are? Are they satisfactory?—They are satisfactory; they do their work all right.

Digitized by Google

3093. So that you would not advocate that a person in order to qualify for that position should be a man who has got coal in a mine?—No, and I would not say that it should disqualify him supposing he had.

3094. I quite agree that it should not disqualify him, but do you say it should be the only qualification?—I should not say it should be the only one, but it should be in his favour if he had that qualification.

3095. I do not object to its being a qualification, but do you say he should be excluded if he had not that qualification?—No, I should not say it should exclude him.

3096. When you speak of inspectors being appointed by the Government, are these men to be appointed by the Government?—I understood that to be the gist of the question which was put to me.

3097. Then you suggest that such a man who should be a practical miner should be paid by somebody other than the miners?—If the miners themselves did not want to pay, I think there would be no objection to those men being paid by somebody.

3098. But why? With very great respect, what are you paid for except to do this work?—That is quite true.

3099. Why should someone else pay?—It might encourage them. The miners probably may object to providing funds for that purpose, and if they do object it might not be unreasonable to ask it to be paid by some other body.

3100. What other body?—Well, say the Home Office.

3101. The Government?—Yes.

3102. Then would you do this: would you have the miners appoint the men who should come in and inspect, unrestrained by any of the restrictions which now exist upon you, and upon other Inspectors, and that they should be paid by the Government. Is that your idea?—There would be some restriction upon them, certainly, because while going round the pit they would be under the control of the officials.

3103. But you are not under the control of the officials, although you have very important restrictions put upon you as an Inspector?—Yes.

3104. Would you allow any persons to come into a mine and inspect and to be paid by the Government who were not under the same restrictions?—I do not see that there would be any great harm in it, because as a matter of fact they would make a Report to the Government Inspector as to the condition of the mine.

3105. Yes, but they would get possession of a good deal of information which might be used against the coal-owner, and you cannot do that. I only wish to ascertain whether your view is not this, that you would establish additional Inspectors to be paid by the Government, and who would be under the same restrictions as you are under yourself?—I think that would do away with the difficulty.

3106. But then those people should be appointed by the Government, and not by the miners, should they not?

(*Mr. Wm. Abraham.*) We do not ask for it.

3107. (*Mr. Ratcliffe Ellis.*) I want to see what Mr. McLaren's view is?—Well, of course, if the Home Office pay them, probably they should appoint them.

3108. Then it really comes to this, that your suggestion is not for an extension of this power of inspection by working men, but it is to appoint some additional Inspectors?—I would certainly prefer that the power under General Rule 38 were taken advantage of by the men themselves, and I believe it is possible that it may be in the future more than it has been in the past. If that were so then that would relieve the whole difficulty.

3109. Can you suggest any way in which your view can be carried out, namely, that the Government is to pay these men by making them Inspectors the same as you are, and under the same restrictions as you are under?—Yes, that is my view if that cannot be got over.

3110. That is how that would have to be done. Now, with reference to the question of fining, you do not think that is a deterrent?—I do not think so.

3111. Would it be a deterrent if, in addition to the man being fined, the fact of his being fined was advertised, the same as in the case of a man who has been fined by the Magistrates?—That might have an effect, but I do not like it at all.

3112. Why not?—I think it is holding a man up to discredit among the men.

3113. I thought that was what was done?—But you see it is only done for that single pit, whereas in a prosecution it has an effect over the whole district.

3114. Would it not have effect in the whole district if you advertised that a man has consented to be fined for a breach of the rules?—If they only advertised it at the pit it would only be for that single pit that it would have effect.

3115. When the men are prosecuted and brought before the Magistrates they are not always convicted?—No, they sometimes get off.

3116. Is that not rather fatal to discipline?—No, I think not, because it shows that the owners are determined to exercise discipline in the colliery, and it has a good effect too.

3117. What, if a man gets off?—Yes, supposing he gets off it shows that the owners are determined, or the manager is determined, to have discipline in the mine, and hence the reason for his taking the man up.

3118. You prefer that to fining?—Yes.

3119. In regard to General Rule 4 as to inspection before the shift, before the men commence work, do you complain of that?—No. Well, I do in this way, that I think the firemen have too large districts, and are not able to see to the administration.

3120. I am not speaking about the circumstances at the pit, but of the rule?—The rule is all right.

3121. But what you mean is that there should be at the pit districts which are sufficiently small to enable each man to go through them?—Yes.

3122. What the rule says is this: "A competent person or competent persons appointed by the owner, agent, or manager for the purpose, not being contractors for getting minerals in the mine, shall within such time immediately before the commencement of each shift, as shall be fixed by special rules made under this Act, inspect every part of the mine situate beyond the station or each of the stations, and in which workmen are to work or pass during that shift, and shall ascertain the condition thereof so far as the presence of gas, ventilation, roof and sides, and general safety are concerned." That is from the station, you see?—Yes; the station, as I have said, in most places in my district is the pit bottom.

3123. If the station is not at the pit bottom, what then?—Then the men in going along the station would require to inspect.

3124. The man would see it as he goes along?—Yes.

3125. But so far as the rule is concerned, you do not suggest any alteration?—Except I think that the rule might be altered to say "every road from a shaft."

3126. How often would that be? You see it must be done before the men go to work. Does it mean that he walks along it?—He would require to inspect it.

3127. You think it should be done in their walk from the shaft?—Yes.

3128. With regard to the second part of the rule as to inspection during the shift, again all that you want is that the district should be smaller so as to enable the men to go through, but you want two inspections? Yes, two inspections, and I want the inspection to be made at such a time as will not put it at the beginning of the shift or at the tail end of the shift.

3129. Is the same man who makes the inspection at night to make the inspection in the morning?—It is not necessary, but I think it would be better if it could be done. The firemen in my district, if the shift starts at 6 o'clock, usually goes down about 4 and comes up about 2 o'clock in the afternoon.

3130. What times does the shift come up—At 6 in the morning.

3131. But I mean the day shift?—In my district the day shift starts at 6 o'clock in the morning and stops at 2, and the back shift, or the afternoon shift, goes down while the others are coming up.

3132. Then he would be down from 4 to 2?—He would be down from 4 to 2.

3133. With regard to the question of agent, the three persons who are responsible are the owner, the agent, and the manager?—Yes.

3134. You say that the agent ought to be what you call a practical man?—Yes.

Digitized by Google

Mr. R. McLaren.

17 Oct. 1906.

3135. Ought the owner to be a practical man also?—It would be better if he was, but it is not necessary.

3136. Would you alter the Act so as to provide that no persons should be appointed agents who are not practical men?—No, I do not think you ought to go to that length.

3137. Will you tell me why you would make the agent a practical man, and not the owner?—Because the agent comes in direct contact with the owner, and, as a matter of fact, before the manager carries out any alterations involving expense he has to consult the agent.

3138. Supposing there was an offence against the Act because a place was not sufficiently timbered where it ought to be, and the manager said, "I cannot do it because the agent will not let me have money enough," the agent would be responsible in that case?—Certainly.

3139. What more do you want than that?—The difficulty I find is how to get at the agent; he turns the thing over to the manager.

3140. Then you want special rules for the magistrates? But is it not a question of fact always. In the case which I have put to you, which is the case you refer to, where the manager says, "I could not get the money from the agent, and he would not allow me to get the timber," the agent is responsible under the Act?—Yes.

3141. Then, if he is a book-keeper, or whatever he may be, he is responsible under the Act if that is his offence?—He is responsible under the Act, but he shifts the responsibility.

3142. What difference would it make to that offence if the man had been a miner?—I say that if he is a practical man, and knows exactly the dangers pertaining to mining operations, as an agent he will see that the provisions of the Act are carried out just as well as the manager.

3143. But is that really a reason to give—that a man who is a practical man would be less economical than if he was not a practical man?—Take a case of this kind: Suppose a manager wants to drive a roadway to provide more ventilation.

3144. Your view is that if he was a practical man he would be more liberal in his expenditure than if he was not a practical man. With reference to the liability of owner or agent, you appear to be very successful, according to your reports—you do not appear to lose your cases?—I always take care when I have a case to have a good, strong case.

3145. You do not seem to lose many of them?—No, I always try to get my cases up well.

3146. You have no complaint to make about the magistrates not convicting in the cases you bring forward?—Well, they have never convicted an agent, because I have never been able to get at one.

3147. You have never given them the opportunity. At any rate, you have no complaint to make that the liability of the owner wants strengthening?—Well, I do not know that. I have in many cases been satisfied in my own mind that the agent was at the bottom of the whole thing, but I could not grip him.

3148. That is suspicion, you see. With reference to explosives, what explosives do you generally use in your district?—We use all kinds, both gunpowder and all the permitted explosives, except bobbinite.

3149. What arrangement do you make for the purchase of the explosives?—Throughout the whole of the shale mines the owners purchase all the gunpowder, they keep it in a store, and the men bring their cans up at night and get them filled.

3150. They buy it from the owner?—Yes, and it is deducted from their wages.

3151. What is done with regard to the permitted explosives?—In the shale mines there is nothing used but gunpowder—no high explosives are used at all.

3152. But in the case of the coal mines?—In the coal mines some of the owners have not adopted the principle, but they allow the men to take home their own explosives, I am sorry to say.

3153. But not the detonators?—Not the detonators.

3154. You say the firing is usually done with a fuse?—It is mostly done with a fuse. We have a good many cases now of electrical firing.

3155. Have you any opinion to express with regard to these fuses?—Do you refer to the tape fuse?

3156. Yes?—I find that the gutta-percha fuse is the safest fuse of all; the white and red is very dangerous.

3157. Are you aware of the tests which are being imposed by the Home Office for fuses?—No.

3158. Have you seen fuses which are dangerous?—The red and white tape I have found has caused a good many accidents, because sometimes a train of powder has missed inside, and it hangs, and sometimes it has hung a long time, and a man has gone back and got injured.

3159. Have you any recommendation to make as to any particular fuse which should be prohibited?—No, I think that is a strong thing to do. I do not think I have any recommendation to make.

3160. You think none of them are sufficiently dangerous to justify prohibition?—Of course, there is this point, that the people who manufacture the red and white fuses might make a better fuse by-and-bye; but I always advise the men, if it is possible, to use the black tape-gutta-percha.

3161. Now with regard to ventilation, the first general rule is that which requires that an adequate amount of ventilation should be constantly produced in every mine night and day?—Yes.

3162. The words are: "An adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases to such an extent that the working places of the shafts, levels, stables, and workings of the mine, and the travelling roads to and from those working places shall be in a fit state for working and passing therein." If that is secured that is all that can be wanted?—Well, if that is properly secured, but that is just the difficulty.

3163. I know, but we will take it step by step. If there is an adequate amount of ventilation to secure that result constantly, that is all you want?—That is everything.

3164. You suggest, as I understand, that you have difficulty in satisfying magistrates or the sheriff in certain cases that there has not been a sufficiency?—Yes, that is the difficulty.

3165. That is controlled by the preceding words, that "The following general rules shall be observed, so far as is reasonably practicable, in every mine"?—Yes.

3166. Have you yourself thought of any test which you could make which would answer all cases—that is to say, to put in either a General Rule or to add to the Act a provision as to what should be held to be an adequate amount of ventilation to secure this result?—You have already heard what I have stated about the cap. I think there should be no cap, to begin with.

3167. In what part of the mine would that be—any part of the mine?—I should say that should be in the current.

3168. In the return airway?—Not the return airway; as the air passes along the faces.

3169. Then how would you describe it—"In the air current"—because that would mean where the air goes in close to the pit shaft?—The air current begins, say, at the intake airway, along the working faces and roadway contingent thereto.

3170. Your opinion would be that if there was a cap shown in a colza oil lamp at the working faces the ventilation should not be held to be adequate?—Yes, that is in fiery mines. With regard to non-fiery mines there is a difficulty about them. I go along the face and I see a small current of air passing, and I say, "Well, that is not adequate," and the manager says it is, and the officials say it is, and I have therefore no power in the matter; but I should say that if it were the case we should be able to say that along those working places there should be a certain velocity passing, and we might be able to arrive at an adequate amount.

3171. I was going to ask you whether, when you found a cap in a lamp at the working face, you would not have to prescribe many other things?—Mines that are non-fiery would require to have a different standard.

3172. Because there you might have suffocating air but no gas at all?—That is exactly what I mean. If the gas passing along was enough to put out a light, in those cases you would say the ventilation was cer-

Digitized by Google

tainly not adequate. Those are the only cases in which I have been able to get a conviction—to prove that the lamp would not burn.

3173. But, still, it would require a good deal of alteration to carry out these ideas of yours?—Well, not very many alterations.

3174. You have not put them down or written out what you suggest?—No, I have not written them out, but I do not know that it would require very much alteration.

3175. I did not quite understand what you meant when you said that the inspector might be empowered to order the men out of the pit?—At the present time he has no power of that kind.

3176. Do you desire a power of that sort?—I think in some cases it is very desirable that when we go to a pit and we find there is gas in the place, without saying to the owners or manager "Withdraw the men," we should have power to order that the men must go.

3177. Just consider this: Supposing you made a mistake, and the men were withdrawn, would there be any compensation payable to the owner for the loss which he would sustain by reason of the withdrawal of the men?—But I do not think that the inspector could make a mistake when he saw a cap on the lamp.

3178. Well, inspectors do make mistakes sometimes as to the necessity of withdrawing the men?—I think you will give us credit that the inspectors are sensible men.

3179. I will give you credit for everything that you suggest, except that you are not infallible?—And that an inspector would certainly not attempt to ask the men to withdraw unless he was perfectly satisfied that it was dangerous.

3180. I quite agree that he might think so; but do you think it is desirable that there should be that power given to the inspectors? I have heard you say that, in your view, the management of the mine should be left to the manager, and that he should be responsible?—Yes, it should be left to him, and he should be responsible; but here is an extraordinary state of affairs which arises, and an inspector goes into a mine and finds there is a cap on the lamp, and he says to the manager, "Now, this is unsafe," and the manager disputes the fact, and he does not withdraw the men, because he does not think it unsafe. I think in that state of things the inspector should have some power.

3181. But you will give the manager credit for some little sense. If an inspector goes to a manager, and says, "In my view this is unsafe, and the men should be ordered out," do you think you would find a manager who would not withdraw the men in a case of that kind?—I have known some men like that.

3182. They are exceptional cases, I should hope?—Yes, they are exceptional.

3183. (*Chairman.*) What would happen in the case of the absence of the manager?—His under-manager would very likely be there, and he is responsible under the Act.

3184. (*Mr. Ratcliffe Ellis.*) He could withdraw the men, too?—Yes.

3185. You agree it would be desirable that there should be some official testing-place for lamps?—I think there should be.

3186. I suppose they would have to decide upon the size of the lamp also?—Yes, the whole thing would have to be gone into very minutely.

3187. It would be possible to have lamps of such a size that they would not be safe?—Yes, I think it is possible.

3188. So that it would mean that a particular lamp of a particular size and description should be submitted, and if that was approved they should be authorised?—Yes.

3189. That being so, to secure the construction of the lamp, do you think that the Act is sufficient now as to the cleaning and examining?—I think the Special Rules are sufficient for that.

3190. With regard to timbering, it is the fact, I think you say, that you have managed to reduce the accidents when you have lectured the men?—Yes, lectured the men and the officials.

3191. You suggested in your report of last year that you thought it was because the props were too great a distance from the face that the number of accidents was not reduced?—Yes, that is one cause.

3192. You approve of systematic timbering?—Yes.

3193. You think that in time it will show good results?—I think in time it is bound to do so. Of course, it is to be understood that there are certain classes of accidents which any amount of timbering cannot prevent.

3194. You suggest that the coal hewer should not do the timbering, I understand?—Yes, that is my suggestion.

3195. Who is to do it?—A man specially appointed.

3196. You mean men. One man could not do it?—I mean to say a man for one district—to give a man a certain length of face.

3197. And he is to keep it up all the day through?—Yes.

3198. Is that the practice in any other part of the kingdom?—No, but I want to get away from the practice.

3199. Is it the practice in any other part of the world?—I do not think it is.

3200. Is there any other man than the man at the face who can keep it safe?—Supposing a man is working and holing coal for an hour, the place is not disturbed in the least, except the holing, and that needs a sprag. So far as the roof is concerned there has been no alteration in the least. While this man is taking out coal and the other man is going along seeing to the roof and putting up props, he can go right along and come back again.

3201. It does not meet your view if the inspection is made during the shift?—No, I think this method would be better; if this were adopted it might obviate the two inspections of the faces.

3202. You have never heard anybody suggest that before, have you?—No, it is a new thing.

3203. With regard to winding engines, have you heard of an invention by a man named Bertram?—I have not.

3204. In which, if the speed is not reduced within a certain distance that you can fix in the shaft, the engine would stop?—There is an arrangement in connection with an electrical apparatus.

3205. This is not an electrical apparatus. It is an apparatus by which you can secure that if the speed is not reduced at a point in the shaft it automatically stops the engine?—At New Battle Colliery there is a device like that in operation.

3206. That sounds a satisfactory means of preventing overwinding?—Yes.

3207. You said that the engine winders are very reliable men?—They are.

3208. I should add also very capable men?—Yes.

3209. With reference to the Special Rules, I think you agree with the suggestion that the Home Secretary should have power himself to alter a Special Rule?—I scarcely go that length. I think there should be some opportunity left to the owners and miners to consider the matter with reference to any rule that is proposed.

3210. But I suggest to you that an arbitration is the proper procedure. You leave it for someone else to say who is right—the Home Office on the one hand or the coalowner on the other?—If you are going to get Special Rules at all, and the thing is to be properly worked, there certainly must be some means of getting at the opinions of owners and others.

3211. Have you any serious fault to find with the present method of making Special Rules, except with regard to the time that it takes?—Yes, I think that is the great fault.

3212. With reference to the question of time, it need not take all that time, need it?—But it does, I suppose.

3213. But the Home Office can reply immediately, and say, "We will not object to these Rules." The section of the Act says the Home Office shall have forty days in which to say it, but they need not take forty days?—It is Section 52.

3214. Yes. "The owner, agent, or manager of every mine shall frame and transmit to the inspector of the district, for approval by a Secretary of State"—that

Digitized by Google

Mr. R. McLaren.

17 Oct. 1906.

is an obligation upon the owner, agent, or manager, and he must do it—"Special Rules for the mine within three months after the commencement of this Act, or within three months after the commencement (if subsequent to the commencement of this Act) of any working for the purpose of opening a new mine or of renewing the working of an old mine." I suppose that is when he begins to turn the first sod?—The moment operations begin.

3215. Then he may send them in immediately, but he has three months in which to send them. After that, acording to Sub-section 2 of Section 52, "The proposed Special Rules—together with a printed notice specifying that any objection to the rules on the ground of anything contained therein or omitted therefrom may be sent by any of the persons employed in the mine to the inspector of the district, at his address, stated in the notice—shall, during not less than two weeks before the Rules are transmitted to the inspector, be posted up in like manner as is provided in this Act respecting the publication of Special Rules for the information of persons employed in the mine, and a certificate that the Rules and notice have been so posted up shall be sent to the inspector with two copies of the Rules, signed by the person sending the same." Then, "If the Rules are not objected to by the Secretary of State within forty days after their receipt by the inspector they shall be established." They are advertised for a fortnight, then the Secretary of State can send them back the next day, and say, "I do not object to these Rules, and they are established"?—But my point is this, that in regard to mines starting in a district where there are already Rules established, those Rules should become law at once, the moment the General Rules become law, and there should be no procedure of this kind whatever unless it be for a new rule.

3216. I think there is something in what you say, that in a district in which Special Rules are established they should apply automatically to new workings. But with reference to establishing new Special Rules, there is nothing in the point as to time, because you can send word back immediately, saying, "I agree." If you do not agree, and if you want to go to arbitration, then you must of course give time?—All I know is that when the Rules were proposed in 1887 it took months and months to do it.

3217. It need not do so, according to the Act of Parliament?——

(*Mr. Wm. Abraham.*) But as a rule it does so.

3218. (*Mr. Ratcliffe Ellis.*) On the subject of workings under the sea, I should like to ask you a question about a case you mentioned, as I gather from you the owner of the mine on the dip was the man who objected to the owner of the mine on the rise working his mine?—Yes, at a certain depth.

3219. Because he said, "If you work your mine on the rise of me you will bring in the sea, and the sea will come into me." As you know, it is the duty of the man on the dip to leave a barrier to protect himself against water coming on the rise. Had the man on the dip left that barrier?—The difficulty was this: there was a barrier arranged, but the agent for the man on the rise went through that and took 1,400 tons of coal out of that barrier, and left it so weak that it appeared to me to be a source of danger.

3220. Was it because the barrier was insufficient that you thought it was a source of danger?—No, it was not that point. That, of course, is a question for the future, because when this place is stopped that barrier will require to stand the pressure of water. What I objected to was for the sake of the men in the place to the rise; that 6-ft. seam, it seemed to me, could not be safely worked in its present condition without endangering the men in the mine.

3221. Endangering the men both in the workings on the rise and going down to the dip and drowning out the whole place?—Yes, very probably.

3222. Can you suggest any remedy which could be put in the Act of Parliament for what you complain of? What you complain of is this, that the case was decided against you?—No, I do not complain of that, but what I complain of is that the district inspector of mines should have no information as to what is being done with reference to the arrangements about working sea coal.

3223. Would you go so far as to suggest that the inspector should be invited to be a party to all arrangements made between lessors and lessees in connection with working coal under the sea?—No.

3224. You would not go as far as that?—No, but what I suggest is that the inspector of mines, who has the duty of seeing to the safety of mines, should have power when he thinks a thing is not safe to have that thing stopped.

3225. That is a different point altogether. Your point is that you are not acquainted with the conditions?—That is one point.

3226. How is that to be remedied, because there are many conditions of danger in connection with working coal under the sea, and you would not go so far as to say that the inspector should be acquainted with all the conditions existing between lessor and lessee?—No, but take the case of working sea coal.

3227. Even there do you suggest that the inspector should be acquainted with all the conditions of working between the lessor and the lessee?—I think in a case of that kind the inspector ought to know exactly as to the depth of cover that is to be on—that should be told him.

3228. Then you think that in workings under the sea if there is any special arrangement made as to the cover that ought to be submitted to the inspector?—Yes, I think he ought to know.

3229. Is the inspector to say whether that should be permitted or not? This is an important question of principle. Is he to be entitled to interfere in a bargain made between a lessor and a lessee of mines under the sea?—I look upon the case of working sea coal as being a little different from an ordinary working of coal between lessee and lessor, and I think that the inspector ought to have a right to know how matters stand.

3230. Before any mines are worked under the sea?—With reference to the matter of safety and what is to be done in the matter of safety. In the case to which I refer this working is going on, and 25 fathoms is the limit, and I know for a fact that at 50 fathoms deep there are openings as broad as *that* (*illustrating*) right down through the strata, and the mud is through from the sea there, and the working is stopped.

3231. Supposing the Home Office were told that this was to be worked, and if there was such an arrangement made in the lease, that there was to be a certain cover over it, and you said, "I do not think that is enough," and the mining engineer said, "I think it is ample," what would you suggest then?—In that case, of course, if they disagreed they can only do as they have done just now.

3232. I should like you to put the specific alteration which you would suggest, if you think any could be made in a case such as that?—The only thing I say is, that it is a pity in a case of that kind, when the matter is being settled as to the cover, that the Home Office is not made aware of the whole procedure.

3233. It seems to me impossible, if I may be allowed to say so, that you could be made parties to an arrangement between a lessor and a lessee of mines. But you complain now that the stipulations which were made by the lessor as to safety are not being complied with?—No, I cannot say that. I have not been there to see; it is only a month since we were there, and I am going across as soon as I get home. But what I say is this: Supposing that the regulations or the conditions laid down are not complied with, I should like to know if I have any power.

3234. (*Mr. Cunynghame.*) There are two powers—one under the Act and one under this Agreement. If you propose a prosecution, if there is anything unsafe in the mine, there is no doubt you have power to prosecute?—You see, it is before the procedure can be put in force that the question arises.

3235. (*Mr. Smillie.*) The men might be drowned in the meantime?—The fact is, the whole question between the mineral surveyor and myself is a question of safety. I have taken up the position that it is unsafe.

3236. (*Mr. Cunynghame.*) Yes, but then you have had an arbitration, and a skilful person has reported that it is safe?—Yes, he says it is under certain conditions; but if those conditions are not fulfilled, what power have I to stop the working if it is unsafe?

3237. To prosecute at once?—(*Mr. Wm. Abraham*) Yes, and the men might be drowned in the meantime; that is our point. The inspector has no power to stop

Digitized by Google

the working. Supposing he went there to-morrow and saw what he has described to us—fissures and the mud and water coming in, and supposing he said, "Unless this is stopped, in my opinion in two or three days this place will be filled up," he has no power to stop that. You say he has power to prosecute.

(*Mr. Cunynghame.*) No, you are rather putting the words into my mouth. The simple point is that a dispute occurs as to whether it is safe or not, and we send the most competent man down there, who says it is safe.

(*Mr. Wm. Abraham.*) But he has not been there since.

3238. (*Mr. Cunynghame.*) He has not been there since, but if when he goes he finds an unsafe state of things, you do not suppose we are going to allow such an unsafe state of things to go on?—No, but what power have I to stop them at once? That is the question. Something may happen in the interval.

3239. You have power to stop them under Section 42 of the Act.

(*Mr. Ratcliffe Ellis.*) Under Section 42 of the Act he has power to call their attention to the matter and give them notice to stop it, and unless within ten days they say, "We do not agree with you," the thing must be stopped.

(*Mr. Smillie.*) No, it is arbitration after that.

3240. (*Mr. Ratcliffe Ellis.*) As I have pointed out before, if it is as you say, they are breaking conditions under which they are empowered to work this coal, and no man would go to arbitration under those circumstances. With regard to ambulance, do you think that, as a condition of being allowed to sit for examination, the under-manager ought to hold an ambulance certificate?—No, I would not make that a condition, but I would certainly encourage it in this way, that I would give the candidate marks for competency in that subject.

3241. The marks are given for competency as mine manager; you would not substitute any marks for that, would you, because anything you take off for that lessens the test of his competency as a mine manager?—Yes, but what we suggest is to put five extra marks on.

3242. You said he was not to fail if he got the necessary number of marks to qualify him?—What I meant to say was that it would not fail a man because he had not an ambulance certificate.

3243. You would not make it a necessary qualification?—Not necessarily.

3244. You would encourage him to get such an ambulance certificate by giving him a few extra marks for it?—Yes.

3245. Do you think the scientific part of an examination might be common to all the country?—Yes—if there is to be any change.

3246. And the same thing applies to the whole country?—Yes.

3247. The practical part of the examination ought to be conducted by Mining Boards?—Yes.

3248. You would have one or two of those examinations in the course of a year, I suppose?—Yes, probably two.

3249. And you might have them at centres?—Yes.

3250. The examinations must all be at the same time?—The examinations must all be at the same time.

3251. Then you would have another examination in the localities, upon the particular part?—Yes.

3252. That is your view?—Yes, that would meet the matter; but of course, personally, I do not think there is any need for a change.

3253. You do not think there is any need for change, but if there is to be any alteration you think it should be in that direction?—Yes.

3254. (*Chairman.*) I should like to clear up a question about the proposed working-class man assistant inspectors. I imagine that you think it would be fair that if the Government pay inspectors of that class, the Government should also appoint them. I mean, you would not leave the matter as in France, that the Government should pay and that the men should appoint?—No, I think the Government should appoint them.

Mr. R. McLaren.

17 Oct. 1907

3255-8. (*Mr. Enoch Edwards.*) Upon the point which his Lordship has just put to you, I should like to state that we who sit here are not responsible for the suggestion that the workmen should appoint inspectors. Who is responsible I do not know, but we are not. I gathered when you were asked the question about inspection of collieries by workmen, that you have never had much of that inspection in Scotland?—Not for a long time.

3259. Have you ever had any such inspection at all while you have been there?—Yes, we have had inspections by workmen repeatedly, up to within the last few years.

3260. You suggested that the excuse which the men gave was that the work was too hard for them to do?—Yes, that was one of the excuses; some of the men told me so themselves.

3261. Has it ever been suggested to you that it was a question of finance that was at the bottom of it—as to who should pay them?—No, I have never heard that—at least, the men have never suggested that to me.

3262. I suppose you are aware that the men at the collieries have no funds with which they could pay for such a service?—Well, I suppose not, unless the Check-weighers' Fund, which goes to another object altogether.

(*Mr. Smillie.*) It would be against the law to use it for that purpose.

3263 (*Mr. Enoch Edwards.*) There are no such funds at the colliery to provide for payment for inspection?—Not that I know of.

3264. Mr. Ellis was anxious to obtain an expression of opinion from you as to what you meant by "working-men inspectors." A cashier at a colliery is, I suppose, a hard-working man?—Yes.

3265. Particularly at a colliery where there are a lot of wages to be paid, and not much money to pay them with. You would not consider that a cashier at a colliery was a fitting candidate, although he was a hard-working man; he might never have been in a pit, and you would not consider him fit for such a post?—No, not for a moment.

3266. You were good enough to suggest that such an inspector should be a man with practical knowledge of a pit?—Yes.

3267. I think, in answering Mr. Ellis, you did not confine the class of man who would be eligible to a coal-hewer, but you said that the coal-hewer should not be debarred?—That is so.

3268. I gathered from your opening statement upon a point which Mr. Abraham has brought to our attention again, that you managed last year in the area of your inspection to inspect all the collieries—I think it did not apply to all the pits?—No, the collieries.

3269. You inspected all of them in one year?—Yes.

3270. That was an exceptional year?—Yes.

3271. Do you think that is sufficient inspection—to go to a pit once a year?—Of course, the Government is not responsible for the management of the mines—that is to be understood—and the inspector has only to see that the Act is carried out. The management of the mine rests upon the manager and the owners.

3272. But there was certainly a purpose in appointing inspectors?—Yes.

3273. I suppose the main purpose was to reduce the death rate if possible?—Yes, and to see that the Act was carried out.

3274. Of course, you are aware that the death rate is very high still?—It is very high, but it has been very much reduced in recent years.

3275. Do you think that the fact that the inspectors have tried to enforce these rules has had something to do with the reduction of the death rate?—It may have had some little to do with it, but I think probably wise management has had a good deal to do with it.

3276. Is it not possible that the managers may have become wiser, because they have had inspectors to lead and advise them, and to give them lectures, and so forth?—Well, it may have had that effect.

3277. The practical men in the pit would be the

Digitized by Google

Mr. R. McLaren.

17 Oct. 1906.

men who understand something about a pit, would they not?—I suppose so.

3278. And out of that material you would be able to make capable managers and capable examiners?—Yes.

3279. The type of men, say, who become under-managers in a colliery?—Yes: I think those are the kind of men who should be under-managers.

3280. That type of man, under-manager, would be a man who would be fitted to assist in inspecting the mines?—Yes, quite so; he would know the practical details of mining.

3281. I know that on the question of fines you are opposed to the experience which we have heard of in two or three districts, of colliery offices imposing fines upon men?—I am opposed to that.

3282. You think that if a man is suspected of committing a breach of a rule for the safety of the mine, or a breach of a rule for the management of the mine, it is better to take him before the magistrates?—I think so.

3283. You have been asked by more than one of the Commissioners what you mean by your observations with regard to dealing with agents. The owner appoints an agent in order to relieve himself of commercial responsibility and otherwise. In your experience have you ever found that a manager of a pit is hampered in discharging his duties because of his agent?—I have.

3284. Take the case of a colliery which is not a profitable one, and in which for financial reasons the agent restrains the manager in his management of it in regard to providing a proper and sufficient supply of timber. Have you found cases where timber has not been adequate at collieries?—I cannot say that I have found such cases with regard to inadequacy of timber, but I have found in other cases that the agent certainly has interfered with the management of a mine to its detriment.

3285. And that might occur where it is necessary to drive a stone drift, or to do other things for the purpose of providing ventilation, which might be expensive?—Yes.

3286. In your opinion the manager should have a free hand entirely in matters so far as they relate to the safety of the men?—I think he ought to.

3287. I understood you to say in your evidence-in-chief that you have not had much reason to complain of the modern plans in your district?—I have not.

3288. Have you much liability to inrush of water in Scotland?—Yes, in a good many cases we have old working outside the new workings, and I always adopt the plan of going to the colliery and telling them about the danger, and, if necessary, asking for the plan from the Home Office to show exactly the position of matters and put in bore-holes. We have a machine in Scotland called the Hunter Boring Machine, by which we can drive long distances and tap the water.

3289. You are not sure that the plans in those cases are always accurate?—As to the old plans, I would not like to express an opinion, because my experience of some of the old plans is that they are not acourate.

3290. You are perhaps aware that during recent years there have been some rather serious disasters, which have been caused largely because plans were wrong?—Exactly.

3291. In face of that fact, do you think that the present Act which provides for boring is sufficient?—That is, boring against wastes where there is water?

3292. Yes?—I think that it would not do any harm to make the distance—I think it is 40 yards—greater than that for a narrow place.

3293. Where they have stolen coal, as you suggest?—Yes.

3294. Do you think the distance is sufficient to secure them, as the law now stands?—No, I think I would have a greater distance to begin to bore than at present exists.

3295. That is, where there is any doubt about plans?—Where there is any doubt about plans at all.

3296. (*Mr. F. L. Davis.*) I think all the points have been dealt with except two. With regard to the suggestion of additional inspectors, whether working men, or so-called working men or not, all you care about, I take it, is that they should be practical men?—Yes.

3297. I mean, it does not make any difference to you whether the man is a working miner or the son of a working miner, or the son of a peer, so long as he is a practical man?—If he is a practical men, that is the whole thing.

3298. I really cannot understand one point of view of yours with regard to the trouble about the agent. It seems to me you ignore altogether the poor agent's own feeling of responsibility?—In what respect?

3299. I have always understood that a Scotchman is a most cautious, canny, and careful man, and that he is not going to take on any responsibility—and this is indeed a huge responsibility—as if it were nothing; but from all you have said about the agent, it appears that the agents in Scotland have no fear or thought about responsibility whatever—that a man interferes with a manager, prevents him doing what he ought to do in a mine, and although he stands to be shot at by this Act, he does not care twopence. That, coming from any quarter, is a great surprise to me, but from a Scotchman it is more surprising than ever. I may tell you that agents in Wales think very very seriously indeed of their position as agents of collieries?—Well, I am sorry to say it is not so in Scotland; but there are quite a number of agents who do as I have suggested to you, and who always shelter themselves behind the manager.

3300. Well, I cannot understand it; it surprises me ——

3301. (*Chairman.*) They first of all tell the manager that he must not do certain things, and then they shelter themselves behind the manager. Is that it?—That is it.

3302. (*Mr. F. L. Davis.*) As Mr. Ellis has pointed out, and as we all know, if you can prove anything against the agent you can proceed against him. There is the procedure which you can take by the Act, and it is a very serious responsibility?—Yes, exactly.

3303. (*Mr. Smillie.*) I think at the outset of your evidence you stated that in your opinion there were sufficient inspections of your mines made last year?—We did last year what we have never done before, as I have said—we got through the whole of them.

3304. You got through the whole of them; and you stated that in your opinion that was sufficient inspection last year?—Yes.

3305. But there were pits which you did not reach at all?—Some of the pits, of course, we did not see.

3306. Do you say that that is quite sufficient inspection with regard to the pits that you did not see?—If we have been to a pit or two belonging to the same colliery we find, as a general result, it sharpens up the others, and it has the effect of making things better.

3307. Are there any pits in Scotland which, to your knowledge, have not been inspected by a mines' inspector for four or five years?—I am not aware; I could not say.

3308. There are none that you are aware of?—No.

3309. You stated to Mr. Ellis that you had never heard before of the suggestion which you have now made—that men should be specially appointed and paid by the owner to timber the places, and to be responsible for the timbering of the places. You never heard of a suggestion of that kind?—No, I never heard it before.

3310. Is that not practically what is done in Durham at the present time?—That seems to be the case—that the deputy does it.

(*Mr. Ratcliffe Ellis.*) No, it is this, that the deputy puts up the timber, but the collier keeps it there.

3311. (*Mr Smillie.*) In Durham the deputy is responsible for the timbering of the place, but when he is not there the man in the working place is responsible to look after his own safety. That is the position?—My suggestion is a little different from that.

3312. Of course, you quite admit it would be difficult to get a number of men to undertake that responsibility where there is stooping to be done?—Yes. Of course, my suggestion refers more to long-wall working, where there are a larger number of accidents than even in the stooping.

3313. I think you stated to Mr. Ellis that you were not in favour of engine-winders holding certificates of competency?—I have no objection to it, but I do not see any necessity for it.

3314. You were assistant inspector in the East of

Digitized by Google

Scotland at the time the accident took place through overwinding at Swinhill Colliery, when you were under Mr. Atkinson?—I do not remember the case; but if it was when I was under Mr. Atkinson, it would be so.

3315. At the present time there is no qualification required for an engine-winder other than that the manager must satisfy himself as to his competency?—That is all that is required.

3316. But he may never have been at a winding engine before?—That is a matter for the manager to look after. The manager will not employ a man unless he is satisfied he can do the work.

3317. Supposing I put to you that managers do so, and that they have appointed men who were not engine-winders, and that by reason of such appointments men were killed by overwinding, would you, in that case, say that there was a necessity for some certificate of competency?—In that case I should say the manager was very foolish, and I do not know that even a certificate would have prevented such accidents.

3318. But it would be some guarantee?—It would be some guarantee.

3319. You believe in having certificates for mine managers and under-managers?—Yes.

3320. In the case of engine-keepers, do you not think it would be an extra precaution, in addition to their being steady men, if they held certificates of competency?—It would do no harm if they had such certificates.

3321. Winding now with modern machinery is a greater strain upon engine-winders than it was previously?—Yes, but I understand they have shorter hours now.

3322. I put it to you in this way: at modern collieries there are a larger number of men being drawn in the cage than there were at one time?—That is so.

3323. There may be 70 men in the shaft at one time?—The number may be as high as 96 sometimes.

3324. In a case of that kind, do you think it would be wise to have two men in charge of an engine, so that if anything should go wrong with one man the other would be there in attendance?—It would certainly be preferable to have two men in a case like that.

3325. Have you known of cases of engine-winders dying suddenly?—I have known two cases in my district where that happened; they were small engines at a winding shaft.

3326. If the same thing had taken place where a man was winding cages, with perhaps 70 men in the shift at the same time ascending and descending, all those men would have been killed?—I think there is no doubt about that, or at least some of them would have been killed.

3327. Unless there was some special arrangement?—Unless there was some special arrangement.

3328. Such an arrangement as bars or gates for cages. You approve of those?—I do.

3329. Do you know of any cases in which men have jumped off the cage and the cage has gone over the pulleys and gone smash?—Yes, I know of such cases.

3330. The men could not have jumped off if there had been bars or gates?—No, but I think it would have been better for them if they had stuck on.

3331. Have you known of any cases in which men have jumped off into safety?—I know of one such case.

3332. I should like to ask you a few questions in addition to the examination you have already had with regard to working under the sea. Do you know of the inundation of the Home Farm Colliery, Larkhall, Scotland?—Yes, I have read of the case.

3333. Do you know what cover there was on the coal in that case?—I cannot say, but it was published in a Blue Book.

3334. Are you aware that for days before the inundation took place indications of an inundation were shown by water rushing in?—I am not aware of the circumstances at all.

3335. Supposing you take it for granted that there were indications for days and days that an inrush of water might take place, do you think that an inspector in a case of that kind should have had the power by law to have stopped the colliery working?—I think it would have been very desirable. I think that was the case where the Clyde came in, was it not?

3336. It was close to the Clyde. Do you say that the seam of coal under the sea in the case you have mentioned is 6ft. thick?—No, it is what they call the 6ft. seam, but it is not 6ft. thick, it is between 2ft. and 3ft.

3337. We might say 4ft. perhaps. I suppose you have noticed indications on the surface in many parts of your district where the workings were 70 fathoms below the surface, and the surface was cracked through the sinking of that?—Yes, and houses down, too.

3338. You have known houses to be wrecked?—Yes.

3339. And you have known very wide fissures to be made in the surface through which the water might have gone?—Yes.

3340. In your opinion this particular working was unsafe?—Yes.

3341. With regard to the present system of drawing up Special Rules, are the workmen in any way consulted in the drawing up of Special Rules?—Not as a rule.

3342. Do you not think that where their safety is concerned they ought to be consulted?—Yes, I think they ought to be consulted.

3343. The question was put to you whether you were in favour of special inquiries conducted by some person appointed by the Government in cases where inquests or fatal accidents inquiries in Scotland did not bring out all the facts?—Where there is reason to believe that the facts have not all been brought out I think there ought to be a second inquiry.

3344. Is it not the fact that the inspector in some cases encourages the belief that safety lamps once put in cannot be withdrawn?—I cannot say as to that.

3345. That is to say, by refusing to allow them to be withdrawn when all danger has apparently passed?—Speaking for myself, I have never encouraged that belief, but I have said the opposite.

3346. Would you say that employers or managers sometimes refuse to put in safety lamps where there is a slight danger in a place for fear that they may not be able to get them out again?—Yes, that is so.

3347. You do not know that it is the case that inspectors encourage that belief by refusing to let them take them out again?—Well, speaking for myself, I do not encourage that belief, because I hold the opposite view.

3348. With regard to adequate ventilation and the dangers arising from gas, would you say that a mines' inspector, after two examinations of a mine, in both of which he had found a cap on his safety lamp in a return airway, and had warned the manager that the working were not safe, should have power by law to stop the colliery?—I should like to know what you mean by "return airway" in that case—the return airway after all the air has passed over the men, or the return coming from the face direct?

3349. Let me put it in this way: Supposing the assistant mines' inspector reported to his chief that he had found in a colliery which he had specially examined explosive gas in dangerous quantities in three places, and that in the return airway for 500 yards he had got a cap on his safety lamp, and that air from the return airway had to ventilate another pit before it went to the surface, do you think that in that case he should have power to stop it?—I think so. I would not, of course, ask for power to stop the colliery where there is a cap in the return airway, but if that return air was to go to another section I certainly would say that the inspector should have some power.

3350. You say that if any cap is shown on an ordinary safety lamp that should justify the withdrawal of the men from the whole ventilating section in which that was shown?—Yes, I think so.

3351. You are aware that in some sections there are places bratticed off and called dangerous where there are large bodies of gas—accumulations of gas?—I have heard of cases like that.

3352. You know that it is a common thing in the Scottish Law Courts for persons to be refused compensation on the ground that they have gone into places which were bratticed off, in which it was known

Digitized by Google

Mr. P. McLaren.

17 Oct. 1906.

that there were large bodies of gas?—Yes, I believe there have been cases of that kind.

3353. Is it safe to have men working in a section where there are bodies of gas known to exist which are bratticed off as dangerous?—Certainly not. I would say that the gas should be taken off entirely before the men are allowed to work.

3354. Is there such a thing in your present district?—I have not known of any such case. I have insisted upon their taking out the gas before the men are allowed to work there.

3355. With reference to shot-firing, you say you allow two shots to be fired?—Yes, in the shale mines.

3356. You say that one of the reasons you do not wish to have more than two shots fired is that from the time that a person lights the first shot there may be a danger of it not going off before he lights the last?—Yes.

3357. Is it not the fact that a person might light two shots, and that the two shots might go off simultaneously, and that he might believe that both had gone off—at least he might hear a report which he believed to be a report of both shots going off simultaneously, and he might go back to the shot, and it might go off then?—Yes, that has happened.

3358. Has it come under your notice?—Yes, frequently.

3359. I have known it in my experience. Consequently it is dangerous even to light two shots?—Yes, but the difficulty is to draw the line; there is always a danger in lighting shots in any case.

3360. What is your definition of a "colliery" or "mine"?—In my report for 1905 there is a note of a recent decision which defines what a colliery is. It is at p. 19: A mine is said to be a place where one or more pits are ventilated by the same ventilating current.

3361. That constitutes a mine under the Mines Act?—That constitutes a mine under the Mines Act. That is the most recent decision. The case was tried before Lord Dundas.

3362. With regard to the Fatal Enquiries (Scotland) Act, do you think that the publicity given to inquiries in fatal accidents in Scotland since the passing of this Act has gone some little way to prevent accidents?—Well, it is very doubtful. I believe in some cases it may, but it is very doubtful whether it has, because there is no real publicity given except in the local papers.

3363. You say you are going to give notice to the Procurator Fiscal in cases where you think someone is to blame, in future?—Yes, I am asked to do that.

3364. Would it be necessary in cases where an agent is acting on behalf of the relatives of a deceased workman that he should also give notice if it is wished to bring home liability to anyone?—I do not know that it is a matter of law. I believe this procedure is a matter of arrangement between the Lord Advocate for Scotland and the Procurators Fiscal.

3365. It is not even the law?—No, it is by instructions.

3366. With regard to electrical coal-cutting machinery, there is a very great increase of electrical machinery in and about mines for pumping and coal-cutting. Do you think that electrical coal-cutting machines should have an expert electrician engaged in working them?—They should have someone who has some knowledge of electricity, at any rate.

3367. Some person who has sufficient knowledge of electricity?—Yes, to be able to guard against dangers.

3368. You say that for several years there has been no inspection made, so far as you know, in Scotland on behalf of the workmen?—I should say in my district, of course.

3369. Are you aware that the Lanarkshire Miners' Association have decided some months ago to pay and to ask the men at all collieries to appoint inspectors, and that they are prepared to pay them from the centre?—I have been told so, but I have not heard officially, unless it is from you now.

3370. Have you had no report sent on to you from inspectors?—None as yet.

3371. Of course, where inspections are made by the workmen a report must be made by the manager, and he must transmit it to the Mines Inspector?—Yes, he is expected to do so.

3372. You say it would be a good thing if the miners' associations paid men to make these inspections. Have you taken into consideration at all what it would cost?—I have taken nothing into consideration as to the cost.

3373. Do you think they should be well paid, because it is hard work?—I think they should, because it is very hard work.

3374. Do you yourself believe the statement that it is harder to inspect a mine than to work at the coal face?—I do not know that the work is harder, but one can understand that a man who starts the work of inspection has to crawl through places and so on, and that he is sore for days afterwards unless he is used to it.

3375. The Mines Act provides for the men, if they care to do so, making an inspection once a month. Would you say that once in every three months is too often to make such an inspection?—I think once in three months would not be too often.

3376. Are you aware that it would cost the Scottish miners fully £2,000—between £2,000 and £3,000 a year to make these inspections?—I am not aware of that, but I believe it is quite possible.

3377. You say you have 274 mines under your supervision in your district?—Yes.

3378. Should I be right in saying that there are 200 in the western division?—No, there are 108 in the east district of Lanarkshire.

3379. And two days would not be too much time to take in inspecting an average colliery?—No, it would not, for an average colliery.

3380. I am speaking of the cost, taking into consideration two men going together; it works out at something like £3,000?—Yes.

3381. Do you think that the men who are appointed for this purpose are really efficient for the work they have to do?—Yes, I should think so—and they would soon learn.

3382. You are aware that they must be working miners?—Yes.

3383. That is, that the miners, although they are prepared to pay men for doing the work of inspection, have not the right to appoint as inspectors men who may have been miners and who may have retired from mining?—No.

3384. The Court has held that "practical working miners" means miners working at the time of their appointment as working miners?—I think that is what is meant, by the way in which it is put in General Rule 38.

3385. Do you think it is necessary that they should be miners working at the coal face at the time that they are appointed?—If they are practical men, and have been working as miners, and have been practical men for a reasonable time, I think there would be no objection.

3386. But would it not be far more suitable if the miners could appoint two men in their own district who could devote their whole time to inspection under this section?—That would be a very wise thing, I think.

3387. It would be a better method than by appointing two men at a colliery for that purpose?—Yes.

3388. You say in your opinion there are too few firemen or deputies to undertake the work at the present time which you think they should undertake?—Yes, I think the duties are too large and the appointments too few.

3389. You say that you think the agent who stands between the owner and the manager sometimes shelters himself behind the manager?—I have found that to be so practically.

3390. In regard to the appointment of the under-manager, Section 21, which provides for the under-manager holding a certificate, also provides that "the nomination of an under-manager shall not affect the personal responsibility of the manager under this Act"?—Yes.

3391. So that that holds the manager responsible jointly with the under-manager, even for a fault committed by the under-manager?—Yes; and even supposing he is from home, he is in fault.

Digitized by Google

3392. Do you think the agent should be in a similar position?—I think he should be.

3393. Are you aware of a case tried recently in the Sheriff's Court in Scotland against a manager, in which the manager was held to be guilty of an offence, but in which the agent was held not responsible?—Yes; he got off.

3394. That has been done several times?—Yes, I know that is so.

3395. That is what you complain of: you say that the agent might really be the responsible person, but that the manager is used as a scapegoat, as it were?—Yes—that the agent very often shelters himself behind the manager.

3396. In your experience does the manager or under-manager engage the workmen at the mines in Scotland?—It is usually the under-manager, or the overman, who engages them.

3397. Where a coal contract is set to a person, and he may employ 50 men, does he not engage his own workmen absolutely independently of the under-manager or general manager?—Yes; first of all the contract is laid by the manager, and then the contractor employs his own men.

3398. Is that a breach of the Act?—I do not know that it is.

3399. Is it not the case that no person is allowed to go down the mine without the consent of the certificated manager?—Yes, that is a Special Rule; in that case I suppose the manager shelters himself behind this, that he has given permission for this man to take the men down.

3400. Do you know that it is the fact that contractors in some parts of Lanarkshire engage, it may be, 50 men, and take them down without the consent or, it may be, without the knowledge of the certificated manager?—I have no knowledge of that.

3401. Have you ever heard of complaints of that kind?—I have had no complaints.

3402. Are there any foreign workmen in the mines in your district?—There are a few.

3403. Have you any opinion to express as to whether or not it is an increased danger to employ a large number of foreign workmen who do not understand the English language?—That point has come to my knowledge recently; there was an under-manager who lost his life through a Pole kindling gas which was being cleared out, so that an explosion resulted.

3404. Do you know for a fact that there are many foreign workmen engaged in the mines in Scotland, especially in the West of Scotland, and also now in the East of Scotland, who do not understand a word of the English language?—A year ago I was asked to go into the matter throughout my district, and although I found that there were rules published in the Russian language, I found that the Poles in that district, who number about 400, spoke five different languages. A few of them could speak English.

Mr. R. McLaren. 17 Oct. 1906. +

3405. Have you yet the Special Rules provided for you in the Lithuanian language?—No, I have not seen them.

3406. So far as you know, the rules are not yet translated into the Russian language?—No, I have not got them; but I know that, even supposing they were translated into the Lithuanian language, a large number of them do not talk Lithuanian.

3407. Is it correct to say that a large number of the foreign workmen employed in Lanarkshire or in Scotland have not the Special Rules supplied to them in their own language?—I could not say as to that. I know that a large number of them have the Russian rules, and that they have been posted up in the Russian language at my mines; but whether the men are able to read them or not is another question.

3408. With regard to the ventilation of the mines, has your attention been called to any special fan, such as a reversible fan, which could be of service in case of explosion?—Yes; a friend of mine at Dalquhandy Colliery has such a fan in operation. ++

3409. In your experience would it have been a good thing if it had been possible to reverse the whole air current in a mine in any case of explosion which has come under your notice?—That would depend very much upon circumstances. If the whole of the stoppings are blown out underground right to the shaft bottom it would do no good.

3410. Supposing an explosion had taken place in the downcast shaft, right at the bottom of the downcast shaft, in the event of it being possible to reverse the whole air current and to make it for the time an upcast shaft, would it be likely to save the men in the return airway between the downcast shaft and the upcast?—It would have the effect of allowing the explorers to get much quicker into the workings.

3411. By the downcast shaft?—Yes—by reversing the air current.

3412. But you do not know of your own knowledge as to the efficacy of that fan?—No, I have not seen it.

EIGHTH DAY.

Thursday, 18*th October* 1906.

PRESENT:

Lord Monkswell (*Chairman.*)
Sir Lindsay Wood, Bart.
H. H. S. Cunynghame, Esq., C.B.
Wm. Abraham, Esq., M.P. (Rhondda).
F. L. Davis, Esq.
Thomas Ratcliffe Ellis, Esq.
Robert Smillie, Esq.
S. W. Harris, Esq. (*Secretary*).

Mr. William Walker, called and examined.

3413. (*Chairman.*) I believe you are the inspector for District No. 5?—Yes.

3414. I am sorry to say we have been obliged to call you here at rather short notice, so that perhaps you have hardly got together all the information you might consider it desirable to place before us?—I did intend, when I was called, to have brought several plans, especially in reference to dealing with coal dust; but I only had your notice on Monday night, and have not therefore, had time to have them prepared. Probably I might be permitted to send them on later.

3414a. Meantime, anything you would like to say on the general question of coal dust of course the Commission will be very glad to have, and I suppose there is a good deal you could say that would not depend upon plans?—Quite so.

Digitized by Google

Mr. W. Walker.

18 Oct. 1906.

3415. You have not had much time to study the evidence that has been already given before this Commission?—Only three days.

3416. But you have, I suppose, to some extent, made yourself acquainted with what had gone on before the Commission?—Yes.

3417. Do you agree with what has been said, particularly by Mr. Martin, with regard to the duties of an inspector?—Yes, I agree with Mr. Martin as to the duties.

3418. Have you anything to add on that subject?—Simply as to the way in which the work is carried out in my district; the custom generally adopted is for the inspector who investigates an accident to attend the inquest; and that, I think, speaking generally, is the better way, because that inspector has all the details and all the circumstances of the accident before him.

3419. I suppose some assistant inspectors might have all those details in his mind?—That is what I say, that the inspector, whether he be the chief or an assistant, if he investigates the accident, attends the inquest as a rule.

3420. So that if your assistant, and not you, were to be the investigator of the accident, you would prefer, naturally, that your assistant should appear at the inquest rather than yourself?—Unless there was something of great importance to require that I should be there, and then I should probably attend either by myself or along with him, or both of them.

3421. Have you thought it necessary in some cases to attend together with your assistant inspector?—Yes.

3422. Have you, in the majority of cases, yourself attended inquests?—In 1905 I attended 52 out of 153.

3423. That is to say, you and your two assistants took about an equal number?—Yes.

3424. What do you say about the size and conditions of the inspectorship district? Do you think it is too large?—So far as the Yorkshire District is concerned it is a very large one, and the coal mines have extended very rapidly. In 1900 the number of persons employed was 79,000, and in 1905 there were practically 113,000, showing an increase of about 34,000. The deaths from accident in 1900 were 96, and in 1905 they were 124, or an increase of 28. It therefore follows that the work of inspection has increased, and I think the question of increasing the staff will have to be seriously considered in the near future if the standard of inspection which has hitherto been kept up is to be maintained.

3425. I believe you have 375 collieries in your district?—Yes.

3426. Have they all been inspected during the last year?—In 1905 at all, with the exception of 9, an underground inspection was made.

3427. Would you say that as many underground inspections in your district as were reasonably necessary were made in 1905?—I think so. The district is extending very rapidly, and the mines are very large; therefore I think the staff would have to be increased if more inspections were made.

3428. Your statement is that up to the present you have been able, with your two assistants, to cope fairly well with the work, but in the near future you will require further help?—Yes. The district is now equal to the two Scotch, or two Welsh, or two Lancashire districts together, so far as the number of persons employed is concerned.

3429. There is only one district in England with over 100,000 persons employed that has fewer mines?—The question of the character of the mines and the extent of the mines must be considered. Many of the mines are very large, and produce 3,000 to 4,000 tons a day.

3430. Would you suggest that your district should be divided and that a portion of it should be taken away, or would you suggest it should remain as it is, and you should have more assistance?—Either would be agreeable to myself. I should not like to say either one way or the other—either would be satisfactory. I might say this, that if a district is very large the chief inspector cannot make the underground inspections as he would in a small district, because he has to supervise the work of all these extra assistants.

3431. How many underground inspections do you do yourself?—I made 137 in 1905.

3432. Out of how many?—The two assistants made 274 and 233 respectively.

3433. Therefore, as regards number, they did more inspections than you did; but probably you took the principal inspections. Is that so?—I went to the cases I thought were necessary. My inspections, I should say, were principally in the very large mines.

3434. Is that the usual course, that the assistant inspectors make more inspections than you do?—What I have done is to divide the list of mines into two, and give each assistant inspector one half as his portion of the district to inspect—to ensure that as many mines as possible are visited in a year—and then I take those I think ought to be inspected myself.

3435. You divide your district into two, and you take from the assistant inspectors' two districts any part that you like yourself?—Yes, and I advise them that I have been down a certain pit, so that they know an underground inspection has been made at that mine.

3436. Do you think it would be advisable for you to make more inspections if you had more time at your disposal?—I should think that is always advisable if it is possible.

3437. Do you think you should make more yourself instead of leaving that number to your assistants?—I do not think it makes any difference, because I get all their reports.

3438. You think it comes to the same thing very nearly whether you go down or your assistants go down, so long as you make a reasonable number of underground inspections yourself?—Yes, to keep in touch with the owners and managers, and to supervise the assistants' work.

3439. Subject to your keeping in touch with the management of the mines in your district, you do not think it is a matter of any importance whether you yourself do the underground inspection or whether you merely get reports of them from your assistants?—I think the present system is satisfactory.

3440. Have you anything to say upon the question of clerical work?—I have a secretary. The clerical work is principally done at night-time.

3441. You have the usual allowance of £25 for a secretary?—Yes.

3442. Do you consider that is sufficient?—I do not; it costs me more than that.

3443. So that you are out of pocket?—I am out of pocket.

3444. What would you consider to be a fair amount to give you for the clerical assistance you require?—If I had the clerical assistance I require it would take a man all his time.

3445. Then what would you get a man to work all his time for?—I should think probably if the allowance was doubled.

3446. You think you could get the assistance you require without being out of pocket yourself if the allowance was doubled—and the work would be properly done?—Yes.

3447. Among the clerical work you have to do is the preparation of the Annual Statistics. A suggestion has been made that if possible those statistics might, at all events to a great extent, be compiled at headquarters in London. What do you say to that?—I do not think that could be very well done apart from the inspector; the papers must go through his hands, and for many reasons I think it is better. Much information in the returns is very useful, such as the age of boys, ventilation, and such matters—and I think an inspector would lose touch to some extent with his district if he were not going through the returns. I think, therefore, it is better as it is.

3448. As you yourself pay for the increased clerical work, and are out of pocket, I suppose you would say that the clerical work done in your district by other people is as much as can reasonably be done by other people? The remainder of the clerical work you have to do yourself, anyhow?—Yes. It is quite impossible for the assistant inspectors to do more than they are doing in the way of inspection.

Digitized by Google

3449. Would it be possible for you to do more than you are doing in the way of inspection, supposing you had, say, an allowance which would enable you to get more clerical work done than you have at present?—Not very much; slightly, perhaps.

3450. If you had an extra allowance for clerical work beyond that which you now spend—not what you receive—you would be able to do a little more inspection work?—Not much.

3451. Most of the clerical work which you do now with your own hands is work which you would prefer to do yourself?—Quite so; I do it at night-time.

3452. Have you to work very long hours at night to keep up this clerical work?—I should think about four nights a week until nine o'clock—post time.

3453. It has been suggested that it might be a good thing that the assistants should be continually changed from district to district, rather than remain for any length of time in one district. What do you say to that?—It would not have to be done very frequently. I think it would not do to be always moving an assistant, because it takes some time for him to get to know all the peculiarities and the different circumstances of a district, with all the mines in it. It might do good if that was done in, say, not less than five years.

3454. You think after five years it might be good to remove an assistant inspector?—Yes, it might broaden his views, probably; but I have not considered the question at all.

3455. What is your feeling about the electricity rules and electrical assistance?—I think, in future, all inspectors appointed should possess some knowledge of electricity, but I think the need for expert assistance only occurs at intervals, and if we can have the assistance of Mr. Ram when it occurs that is all that is necessary. I have had him on one occasion in Yorkshire.

3456. You hardly consider it necessary for either inspectors or assistant inspectors to have, for instance, to pass an examination or to pass any test?—I do not consider that they should necessarily be expert electricians. I have some knowledge of the subject myself. I was at one time three or four months in electrical works, and I find it very useful now. I think, therefore, all inspectors should have some knowledge of that kind in their training.

3457. So that in the future you suggest a man who wanted to be an inspector should be a man who, before he was made an inspector, could show that he had some sort of elementary knowledge of electricity?—I should think the best way to deal with it would be for the qualifying examination to contain some questions on electricity.

3458. You would be in favour of that?—I would.

3459. And also in the case of the assistant inspectors?—Yes, all inspectors.

3460. Do you wish to say anything with regard to inspection under Rule 38 by the men?—I have made some notes on that. At many of the largest mines the men exercise this power. The results are, in my opinion, good, and they tend to make all the officials, especially the subordinate officials, more alert and up to the mark. Some of the mines take a long time to inspect, owing to their extent; recently, two men took nearly six weeks to inspect one mine. About 1,400 men were employed underground at it, and they made a thorough examination of all the pit, and a very good report afterwards. There were one or two things they reported that required attention, and I met the men and discussed the report with them, and also had the places visited and inspected and put right. In connection with that report the men raised a question which I think is worth mentioning. It took six weeks, and the rule says they have the right to inspect once a month. They wished to know whether they could start again where they began, and practically, therefore, make the examination continuous.

3461. I suppose they could. For instance, I suppose that if an inspection took, say, three days, the next inspection would be not a month after the end, but a month after the beginning of the first inspection?—That in certain cases would make the inspection continuous.

3462. Suppose it took six weeks—it would not always do that?—Well, many of them in the large mines take a month.

3463. Do you say they want to have those inspections continuous?—No; that is just a point they raised.

3464. I should think they would be entitled to have their inspections once a month if they wanted them?—Personally, I think it would be the other way. It would simply mean that they could make another examination after the lapse of a month.

3465. That a whole month must elapse between the beginning of one and the end of another?—Yes.

3466. I do not know how that may be. The men do not want it?—It is a point worth considering, I think. In the Durham district I had experience with the working of the rule, and it had beneficial results, and in some respects it was of benefit to the inspectors. The inspectors often heard of things being wrong and unsatisfactory at a mine which they would not have heard otherwise. At the majority of the mines in that district it is the custom for two of the men to inspect the place where any fatal accident occurs. This is a good thing, and might be extended. I think I should give the men the legal right to inspect any place after a fatal accident. In that case the rule would have to be amended, because there might be two or three accidents, say, in a month, and the second inspection they could only make with the permission of the manager. It would be essential that the men should make a report after each inspection, and that it should be made at the pit before they leave it.

3467. Do you suppose that any owner would object to the men investigating the circumstances of any fatal accident on the spot if they chose to do so?—Generally I should say not. But there may be friction at the colliery, and then they possibly would.

3468. Do you find at any mine there is a disinclination on the part of the men to take advantage of this rule?—In what way?

3469. Do you find there are mines at which the men do not exercise the power?—Some of them.

3470. What is the reason given?—They do not give any reason at all; they do not exercise the power. It does not occur to them to be necessary at all.

3471. Do you suggest it might be as well that they should?—I have mentioned it where I can, both in my report and otherwise, and I should think about 30 per cent. of the collieries do exercise the power.

3472. Therefore, the majority of them do not exercise it at all?—There are so many small mines where they only employ, say, from ten to twenty men, where it would not be of much use.

3473. In mines where they employ over 100 men should you say this plan was usually adopted?—No; I should think it was usually adopted at mines where they employ about 500.

3474. Do you think at mines where over 500 men are employed they usually take advantage of it?—Most of them; I do not say all. Of course, one does not hear of all these examinations. You hear where there is anything wrong, but you do not hear of some of those where everything is right.

3475. When you suggest to the men that they should take further advantage of this opportunity of inspection, do they not give you any reasons for not exercising the power?—No, except that the question has been raised that the men in some of the collieries wish to have the money kept from the wages of the men at the colliery. That is a question really of union men and non-union men.

3476. I do not quite follow that?—Men who are in the Miners' Association, and men who are not in the Miners' Association. They argue that the men who are not in the Miners' Association do not pay towards this inspection, and therefore it should be a case of keeping money from all the men for this purpose, as it is for the benefit of everybody employed in the mine.

3477. So that not only a particular class of miners should be obliged to contribute, but everybody who works should be obliged to contribute?—Yes, in a similar way to the case of a check-weigher.

3478. (*Mr. F. L. Davis.*) You mean they want the colliery company to deduct it from the wages of the men at the colliery?—Yes.

3479. (*Chairman.*) How do they pay the men who make the inspections?—They pay them the average wage of the district.

3480. There is no difficulty about that?—No.

Digitized by Google

Mr. W. Walker.

18 Oct 1906.

3481. And they are quite content to pay these men themselves? They do not suggest it should come out of any central or public fund?—I have never heard it suggested. I have known cases where the owners have given the money that is deducted or "laid out," as it is called in Durham—that is, the money for the deductions for dirt or stones. At some collieries they have given that.

3482. Practically in some collieries the owners have paid for the inspection?—That is very seldom done. I have not known it in more than one or two cases.

3483. I thought that you meant that they made some contribution towards this fund?—No. Under the agreement they deduct so much for dirt or stone in a wagon, and the owners have given that money to the men for the purpose of paying for the inspection.

3485. In an indirect way they have contributed?—I do not know more than two or three cases of that kind.

3486. What is done with the fines as a rule?—In the Yorkshire district they generally give them to some charitable object, an infirmary or something of that kind.

3487. And do they sometimes give the money towards the inspection by the men?—I have known cases. I do not say they do it regularly, and I would not like to say what they do now.

3488. Would you suggest it would be a good thing that the fines should be devoted to this purpose?—I should not like to suggest anything of that kind.

3489. I suppose you would consider this provision under the general rules, subject to what you say about fatal accidents, was sufficient as regards the ordinary inspection by the men?—Yes. There is a point as to Section 48 in reference to the Coroner's Court which I think might be amended—viz., to allow a man or men to attend the inquests on behalf of the workmen.

3490. That there should be power to the men to have that right?—The difficulty that has arisen in one or two cases is this: that section says that they are to be appointed by the majority of the men, and some of the coroners insist upon the men producing the actual signatures of the majority of the men. It is quite impossible to get that, as the time, as a rule, is short between an accident happening and the holding of the inquest.

3491. So that it is held that in order to constitute a legal appointment an absolute majority of the men at work at the time in the mine must sign it?—Some coroners have held—it is not general—that they must have the actual signatures.

3492. Consequently, when a man comes and says, "I have been appointed by the men to come and attend this inquest," the coroner says, "Where are your credentials?" and if he cannot produce some appointment then he is not allowed to put questions?—If he simply produces a letter from the secretary of a union or a local lodge, as it is called, he says, "I cannot take this; I must have the signatures of the majority of the men. This is no evidence to me that you represent the majority of the men."

3493. (*Mr. Ratcliffe Ellis.*) Have you many cases of that sort, where the coroner will not allow the men to be represented?—One corner especially will not allow it. In Yorkshire it is very seldom that the men are represented.

3494. Do they not want to be represented?—I think it is better that they should be.

3495. Do the men consider it a great grievance that they are not represented?—In some cases I have had it mentioned to me.

3496. It is only one or two coroners who look at it in that way?—One in particular. I have heard a coroner say, "You can stop here, but you have to put any questions through me."

3497. (*Mr. Wm. Abraham.*) Do you not think it would be well that the men should have the power to be there?—Yes. But the point is only upon the question of being certain that they represent the men.

3498. (*Chairman.*) Supposing a man went there and produced some sort of credentials to show he was sent there by the men themselves, do you think there is any coroner who would prevent him asking questions through him, the coroner? Would this coroner, who objects to a man appearing on behalf of the other men unless he has the signatures of the majority of the men working in the mine, object to his putting questions through him, the coroner, if he wanted to do so?—I think where they have come—they do not come now for the reason mentioned—he has allowed it; but I do not think a question through a coroner to a workman is as good as a question direct to the witness, because the witness does not understand it as well.

3499. (*Mr. F. L. Davis.*) Your point is that the coroner wants to be sure that the man is really the representative of the men?—That is the point. In the Durham district the coroner always accepts a notice from the secretary of the local miners' lodge that the man represents the men, and usually he is the man who has made the inspection on behalf of the men under Rule 38.

3500. (*Mr. Smillie.*) There is a clause about that in the Scottish Fatal Accidents Inquiry Act?—Yes.

3501-2. (*Chairman.*) This is the amending Act of 1906: "After hearing the evidence and the persons, if they so desire, appearing therein, including any person duly authorised by any trades union or friendly society of which the deceased was a member"?—Then all he would have to prove would be that he was authorised by that trades union.

3503. (*Mr. Wm. Abraham.*) The workmen would not ask anyone to attend these inquests on their behalf unless he had been duly authorised, and in that event you say it would be reasonable?—I think so.

3504. (*Chairman.*) Your suggestion is that the provision of the latest Scotch Act should be incorporated in the English law?—I think so. There is one thing I should like to say in connection with inspections under General Rule 38, and that is, I think it is necessary that the persons should be competent persons; therefore, it is better to have the wording as it is now, "practical working miners."

3505. (*Chairman.*) You suggest those words should be retained?—I do.

3506. (*Mr. Smillie.*) Would you add the word "competent"?—I do not know who is to be the judge of competence.

3507. (*Chairman.*) It comes to this, that Rule 38 meets your view?—Yes, with this exception, that I should give the men the right to inspect after a fatal accident, but it should also be made clear that nothing was to be moved until the mines inspector had made his inspection, because very often that is of very great importance. It could be made before the mines inspector has made his inspection if everything was left just as it was for a lapse of three days, as in the present Act. The owners now have to leave a place, after an accident, as it was until after an inspection is made, or for three days.

3508. You think the men should have the power to go and see the place where the accident occurred, but not to interfere?—Not to move anything.

3509. They should have immediate power to go down and see the place where an accident occurred, even before the inspector went?—Yes, I should let them go at once.

3510. And they exercise that power now sometimes?—They do in some districts.

3511. (*Mr. Smillie.*) They have not any power?—They have power, of course, if they have not made an inspection for a month.

3512. (*Chairman.*) They go down and see the place as part of their inspection?—Yes.

3513. If the monthly inspection has just taken place, then they can only go down by permission of the mine-owner?—Yes; that is my point.

3514. With regard to the discipline of the mine and the supervision by mine-owners, do you have fines in your district, or is discipline enforced by prosecution?—It is enforced partly by prosecution, but I think to a greater extent by fines.

3515. What do you think of the system of fining?—The fines are usually moderate fines. I think a prosecution before a magistrate has a better effect on discipline and everything else, but such a course takes the managers and officials away from the mines for two or three days, because many things have to be done, such as laying the information, and consulting solicitors, and the hearing of the case.

3516. It has been suggested to us that there ought to be no fines, or that the fines ought to be resorted to very infrequently indeed, and where an offence was not sufficiently great to render it necessary to have a prosecution that the man should be let off with a caution,

Digitized by Google

or something of that sort?—That is done in some cases.

3517. But they do fine, too?—Yes.

3518. You think fines in some respects are useful?—Yes, in some cases. I would prefer prosecutions in serious cases. For instance, in the case of a man taking a match down a pit or damaging a lamp, I should never fine him, but I should always prosecute.

3519. In your district you consider the fines are reasonable?—Yes, they are moderate. They seldom exceed half a crown, unless it is for a very serious breach of the rules.

3520. I suppose there is a maximum fine of 40s.?—But that is never imposed, I think.

3521. Would it be well to keep the maximum as high as that?—You mean the fine at the Petty Sessional Court?

3522. Yes; might it not be desirable to lessen the maximum amount of fine in order to encourage prosecution. A man would not be fined £2 unless the magistrate thought it was a very serious case?—It is seldom—I have known only about three cases—where the magistrate fines £2.

3523. A magistrate can, if he pleases, fine up to £2?—Yes.

3524. I suppose you look at the list of fines imposed by owners from time to time?—Yes, as I go round.

3525. What would be the biggest fine in your recollection?—I should think, on an average, they do not exceed half-a-crown.

3526. Would they run up to 20s. sometimes?—I do not remember for the moment having seen one. I should not like you to misunderstand what I say. I did not say that I approved of the system of private fines. I only pointed out one of the difficulties that you find in every case of prosecution, namely, that you take the officials away from the mine.

3527. (*Mr. Wm. Abraham.*) In your opinion, prosecution in every case is the best way of preventing accidents?—It would keep up the discipline of a mine better.

3528. It would be a greater deterrent to a man committing a breach of the rules?—Quite. A man would sooner pay a sovereign at a colliery than 10s. at the court: more than that, all the men hear of a case when it is in court.

3529. You would not recommend that the Mines Act should be altered so as to give the employer this power of fining?—I should not say that.

3530. I ask you your opinion?—I should not say that.

3531. If it would be a good thing you would like to have it in the Mines Act?—I should not say that.

3532. (*Chairman.*) You say there is more publicity given to the matter on coming before a magistrate, and everybody knows more about it than if it is a matter of a private fine. I understand in some collieries there is a notice posted up containing an apology for a breach of the Act, and sometimes that apology contains an agreement to pay a fine?—I have seen that in one or two cases: I think that is in Monmouth.

3533. Not in your district at all?—No.

3534. In your district it is merely a matter between the manager and the man, and no one need know about it except you, or someone who looks over the list?—The only instance I had of it was a case where the men strenuously objected to that apology being posted.

3535. That was in your district?—That was in the Durham district.

3536. Have you heard anything in your district about the suggestion that the Miners' Union sometimes pays for the defence of men prosecuted for breaches of rules?—I have never heard that.

3537. Have you anything to say with respect to inspection by officials under General Rule 4?—I think General Rule 4 is satisfactory to a certain extent, but it requires amending, I think, so that two inspections should be made during the shift, and a report should be made in respect of one of those inspections at least.

3538. Not both inspections?—No, not unless something was wrong, such as gas being found.

3539. You think two inspections during a shift should be made?—Yes.

3540. And a report of one of them?—Yes, and report of one during the shift.

3541. What do you say about the number of officials who are employed to make these inspections. Do you think there are a sufficient number to do it properly?—I think now that often the districts are too large. I know of cases where a deputy—that is the man under the Rule—has not got to some of his men until 1 o'clock, and the shift is over at 2 o'clock. In such a case the official cannot exercise much supervision on the timbering and that sort of thing.

3542. So that the scarcity of officials would, to some extent, I suppose in your opinion, account for the large number of timbering accidents?—Well, I think the timbering rules would be carried out better if there was more supervision.

3543. It has been suggested, with regard to the resonsibility of the owner in connection with the working of the mine, that the owner sometimes gets rid of responsibility to a greater extent that he ought to be allowed to do by the mere circumstance that he has appointed a manager of the mine, and that is considered enough to exonerate the owner, apparently, from any responsibility of his own?—As regards that, I think that the owner or agent, if he exercises any control over the management of the mine, should also share the responsibility, or should be held responsible.

3544. Have you studied the various cases on that subject which have been placed before us?—I have read them.

3545. Have you anything to say on them?—I do not wish to say anything on them, but I know one or two cases where a manager has been convicted, and the agent has not, that have never been appealed against. The agent has got off, and he has been the person who really had the sole control: the manager was under his control, and he took a very active part in the management of the mine. I think in a case of that kind he should not escape responsibility.

3546. Where an owner or an agent of a mine takes an active part in the management of the mine you think he ought to be liable, to some extent, as well as the official manager of the mine?—Yes, to the same extent—but if an owner or agent could prove that he appointed this manager and gave him a free hand, then I should leave the Act as it is for that owner or agent.

3547. It has been suggested that possibly it might be well if there was some sort of technical qualification necessary in respect of an agent. Do you agree with that?—I think it would be better.

3548. Do you think if an owner appoints an agent that he should be obliged to appoint some man with some sort of technical knowledge of mining?—I think it would be much better, and in my district it is so at all the large collieries.

3549. Do you think they ought to pass the examination that a manager has passed?—Many of them have passed it, and some of them are examiners too, at the present time.

3550. So that so far as your district is concerned the appointment of agents is satisfactory in reference to their qualifications?—Yes, I have not any fault to find with them, as a rule.

3551. Do you object to the provision in the Act which makes the agent superior to the manager?—No, I think that is right: I think it is bound to be so; but he should share the responsibility if he takes an active part in the management.

3552. The agent, as representing the owner, is the superior officer of the manager?—He is, under the Act.

3553. You think that is right?—I think that is quite right so long as he has responsibility.

3554. So long as he interferes in the management of the mine?—Yes.

3555. Then if he does not interfere in the management of the mine there can be no question, because it does not matter whether he is the superior officer or not, if he does not interfere?—But at present they do escape responsibility, although they are superior.

Digitized by Google

Mr. W. Walker.
18 Oct. 1906.

3556. These particular agents are qualified. I suppose there are agents who are not qualified?—I do not say they all are. I know of some who are not qualified.

3557. Do you think those who are not qualified exercise an injurious influence on the management of a mine?—They might.

3558. You could not say in any case that the working of the mine is hampered or made more dangerous by the appointment of an agent who has not any technical knowledge?—I have not been in the Yorkshire district long enough to say.

3559. How long have you been there?—Only two years.

3560. How long were you at Durham?—Sixteen and a half years.

3561. Did you in Durham come across agents who had no technical experience who interfered with the working of a mine?—No, as a rule in Durham the agent is a qualified man.

3562. You have had no instance in Yorkshire or Durham of an agent interfering with the management of a mine to the detriment of the working of it?—I cannot recall any case. It might be so in Yorkshire in some of the mines, but I cannot vouch for it.

3563. At all events, you think an owner should not be allowed to appoint an agent who had not some technical knowledge?—I think it is very much to be preferred.

3564. I see you have had two deaths from explosions and twenty-three persons injured in Yorkshire?—Yes, in 1905.

3565. Are the accidents decreasing or increasing in your district?—Under the head of explosions through gas and dust, fortunately, for some years we have been free from any great loss of life. The last big explosion was in 1896, at Micklefield, when sixty-six lives were lost, but since then there have been only in the last five years seven persons killed by explosions of gas.

3566. How many injured?—I have not taken them out.

3567. At all events, accidents from explosions have been in a fairly satisfactory condition in your district?—Yes, I think so. Most of the explosions have been due to naked lights. There was one case of shot-firing, and two fatal cases from electric sparks, and one fatal case from electricity.

3568. What precautions do you think might reasonably be taken that are not taken at present, if any, to prevent explosions. For instance, in the first place, consider the question of watering?—Watering is done on the engine planes by means of tubs with holes in the bottom, and the dust is cleaned up, but I do not think that is sufficient. It is only the dust on the floor that is damped, and it leaves that on the sides and on the roof, which is the more dangerous dust, untouched. At some mines they have recently put in sprays in their shafts, and at others they have sprays on the haulage roads. At one mine recently they have put up a fan driven by an electric motor to exhaust the dust from the screens, and that has had a very good effect; and at others they have the screens a considerable distance from the downcast shaft. The dust is carried by the downcast shaft current into the mine. I think it might be made compulsory that the screening plant should not be at a less distance than 100 yards from the downcast shaft, or that some means be taken to prevent that dust going down into the mine. It is the very finest of dust; and they should keep the screens, that is the machinery for dividing the coal into the different qualities, either 100 yards from the shaft, or some means should be taken to prevent the dust going down into the mine.

3569. You think the coal should not be screened within 100 yards of the shaft?—That is my suggestion.

3570. That is the case with some of your mines?—At the newer mines.

3571. Have you many dry and dusty mines?—A considerable number.

3572. Would there be any difficulty in applying this 100 yards rule to old mines where the screening now goes on?—There would be in that case, but I do not think there would be any difficulty in having means to prevent the dust going down. They do that in some cases by sprays in the shaft or jets of steam.

3573. You think that is sufficient if you have considerable sprays in the downcast shaft?—It has a great effect. I was down a mine the other day where they put in some steam jets—it had been very dusty—and those steam jets had been on only about three months, and there was very little dust—it had been damped and fallen into the bottom of the shaft, and cleaned out at the week-end.

3574. (*Mr. F. L. Davis.*) Fallen damp into the sump?—Yes, quite damp. Often when you go on to the screens you can hardly see the men in consequence of the very fine floating dust.

3575. (*Chairman.*) It does not matter where it is screened so long as the downcast shaft is properly watered?—But it would be more likely not to be taken down if the screen was some distance from the shaft.

(*Mr. F. L. Davis.*) I do not know about your district, but in Wales that would be extremely difficult except in new collieries, because you have not got the room.

(*Mr. Cunynghame.*) The witness I understand to suggest as an alternative an arrangement which would prevent the dust coming down.

3576-7. (*Chairman.*) You might screen to a certain extent away from the shaft, or have some sort of sieve or other arrangement to catch the dust before it got into the shaft; or if it did get into the shaft you might water the shaft?—I do not think a sieve would be a practical thing; the dust is too fine. At the Cadeby Main Colliery a fan, of which I will hand in an illustration,* is in use to exhaust the fine dust from the screens. They get about a ton of dust a day, and I believe they are able to sell it to advantage.

3578. (*Mr. Cunynghame.*) A ton of this very fine dust getting down a mine from the top might cause an explosion in a mine which would not otherwise be occasioned.

3579. (*Mr. Wm. Abraham.*) If ordinary coal dust is explosive and dangerous, as we know, that being so fine would be still more dangerous?—Yes, it would be most dangerous. They simply cover over the shaker screen, and connect it to a fan. They have a 2 ft. tube, about 2 ft. in diameter, with a water gauge of 2 or 3 in. It is the very fine and dangerous dust, and it is caught just as it passes over the ends of the screen when it is going on the belt after it leaves the tippler—between the tippler and the belt. There is a chamber above it, and the dust is drawn up, and the large coal goes down to the belt as usual. The dust always comes up, whether you have a fan or not. If you notice, when they put the coal over the tippler, or shaking screen, all the fine dust comes straight up.

(*Mr. F. L. Davis.*) How do you do where there are no tipplers? In most of the collieries in Wales there is a stationary screen. It is tipped into the waggon below and the dust that rises is tremendous, but all that dust cannot find its way down the little opening to the shaft.

3580. (*Mr. Cunynghame.*) Not all, but still the point is enormously important to consider?—There is a very big suction on your downcast shaft.

3581. (*Mr. F. L. Davis.*) A good deal would go, but not all?—Most of it.

3582. You say you take more out by the fan that would otherwise go down the downcast shaft?—Yes.

3583. (*Mr. Smillie.*) Is there not another reason why that should be done besides danger from explosion? Would not purifying the air be of great importance? If the small dust is going down the men and horses must be breathing it. It would purify the air in addition to removing the danger of accumulating dust?—It might, but that is a big question.

3584. If what you suggest is being done by sprays, and the dust actually goes down in a damped condition, that clears the air of it?—It does.

3585. (*Chairman.*) Do you think there ought to be a provision for dry and dusty mines, making it necessary to do something of the kind which you suggest?—Yes, I think something should be done. I think the danger is one that is very great, especially in Yorkshire.

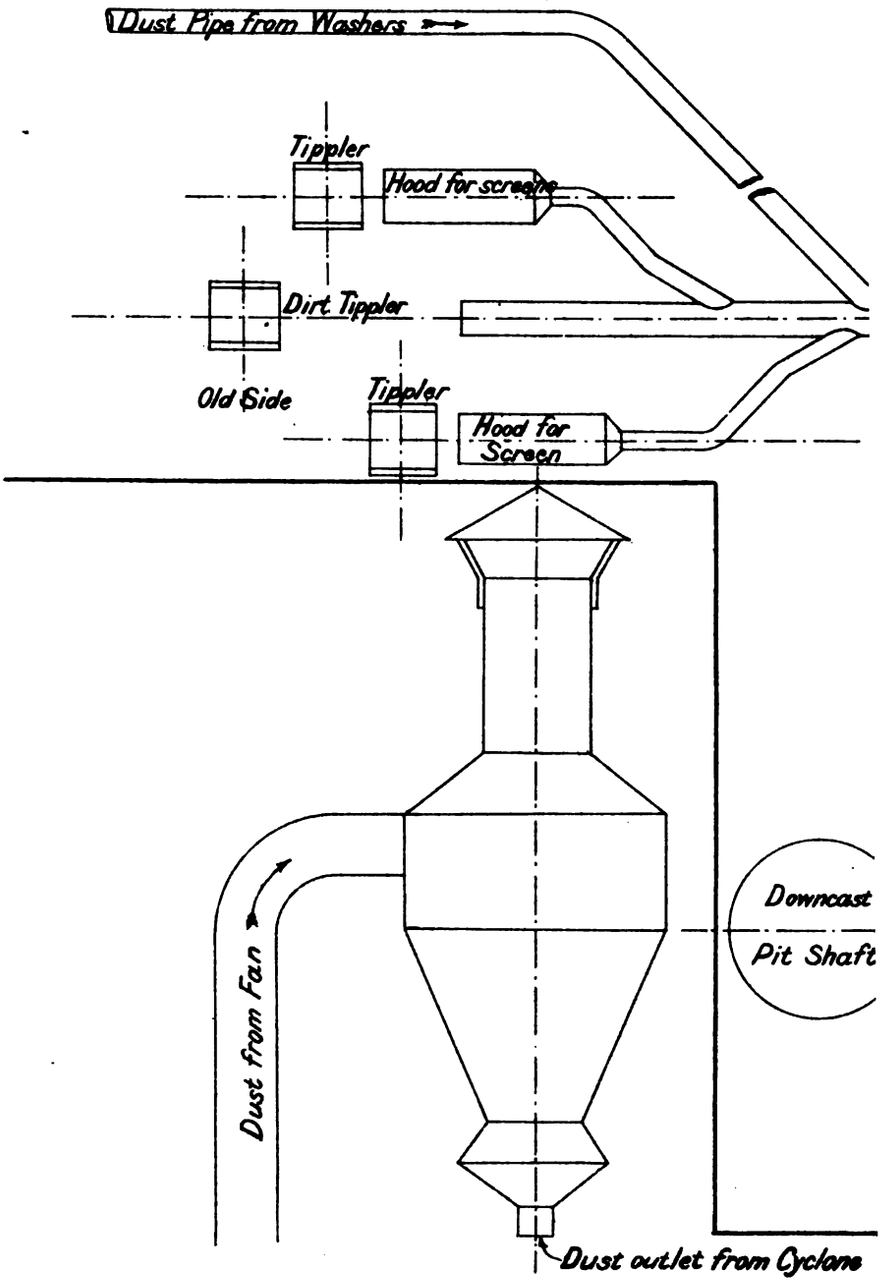
3586. You consider that a great deal might be done in the way of preventing the dust getting down the mine at all, without any great expense?—It would be expensive. This arrangement I am telling you of now cost £500, I think.

3587. You say they get a return in the form of this

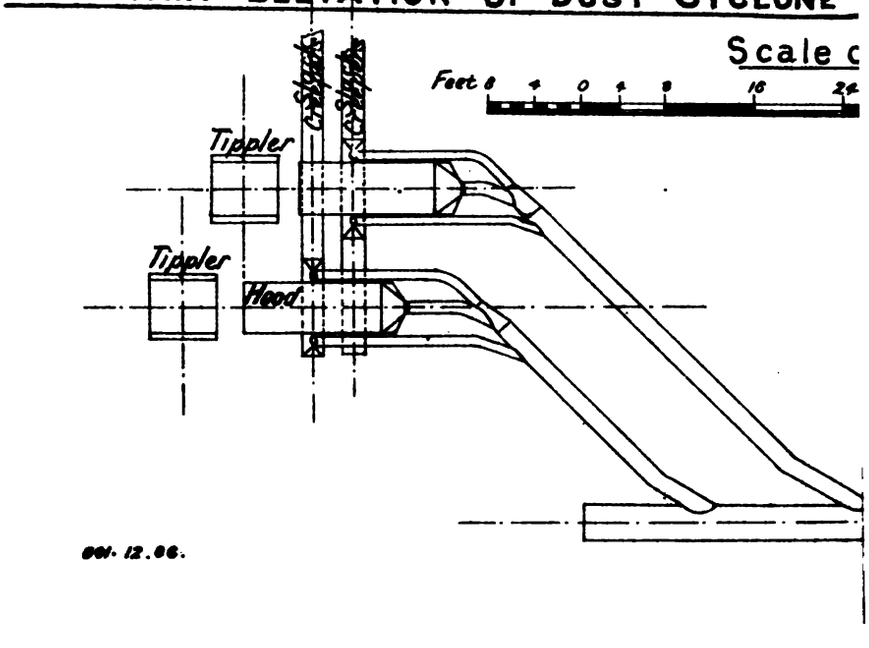
* See Plate IV.

Digitized by Google

PLAN OF FANS AND PIPES FO
FROM THE SCREENS
CADEBY MAIN CO



PART ELEVATION OF DUST CYCLONE

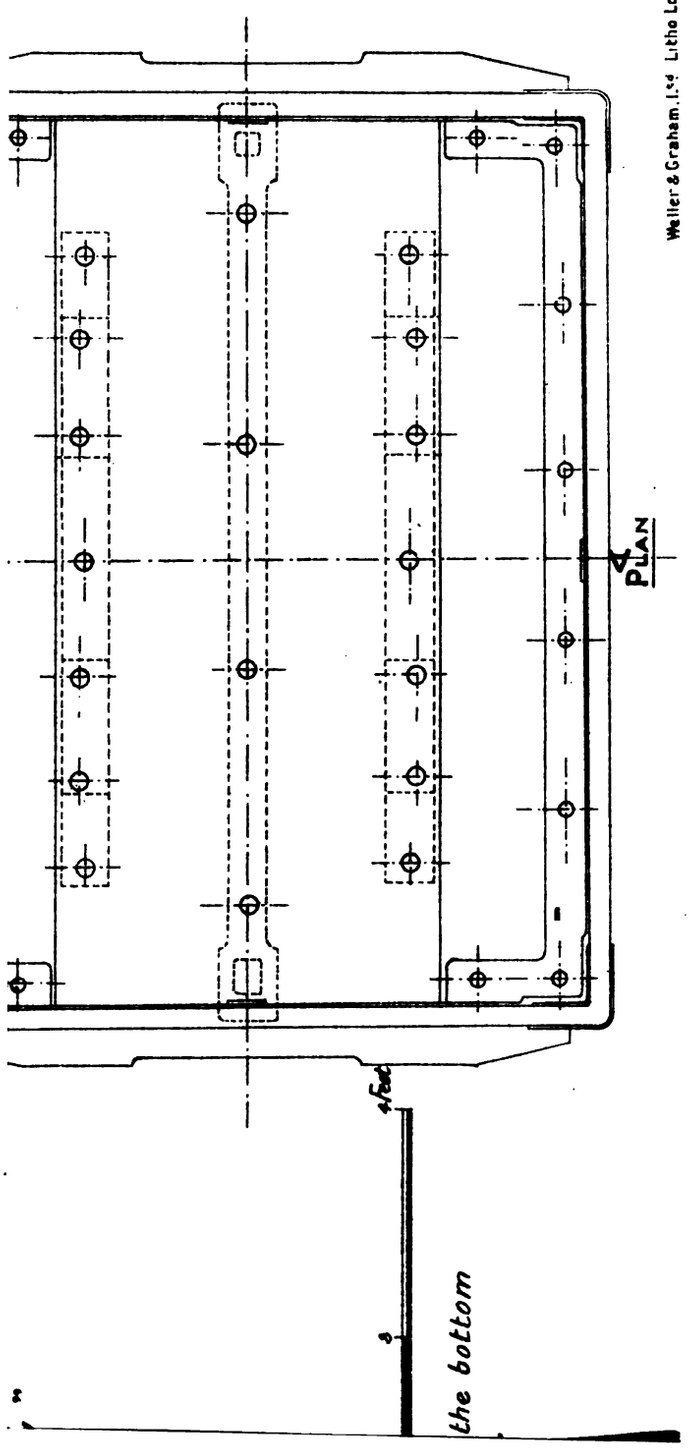


DEC. 12. 06.

Digitized by Google

Digitized by Google

To face p 153.



Weller & Graham, Ltd Litho London.

Digitized by Google

dust?—Yes, they are able to sell this very small coal to advantage.

3588. So that, practically speaking, you get back, if not your £500, a good part of it?—You would get some of it back, I would not like to say how much. The danger is so great that it is not a question of cost at all—not unless it is going to close mines altogether—but I do not think the cost would be so great as that. It is very difficult in some mines to water on account of the dampness of the floor and sides, because in some of these there is stone containing lime, which directly you put water on it disintegrates and falls. I think more watering could be done, and more could be done in the way of sprinkling salt on the floor, and clearing the dust off the bars and baulks on the haulage roads.

3589. Is it not said sometimes that the floors are apt to rise if you water them too much?—That is what I say. It is very difficult in some mines to water, but I do not think as a rule it is so difficult as it is made out.

3590. Would you be in favour of what is called wet zones?—I believe in them.

3591. That is to say, if you make a certain part of the mine very wet there might be comparatively dry places which could do very much harm; for instance, where you found the floor was one which could not stand a great deal of water, you might water somewhere else?—I think you might put brick arching in, for instance, and keep it wet and clean. That has been done, and one very large firm in West Yorkshire are putting in arching 250 yards in length n each direction from the shaft, with the intention to keep that scrupulously clean and damp.

3592. (*Mr. F. L. Davis.*) From the shaft?—From the shaft in every direction.

3593. Straight away in?—Yes.

3594. (*Chairman.*) So that if there was an explosion it would not go through these arches, but it would stop?—It would stop. I think in many of the mines there is brick arching in the present haulage roads which could be dealt with in that way.

3595. What do you say about the wagons? It has been suggested that the wagons are made in such a way as to scatter a great deal of dust about the mines? I think it is very desirable that all wagons should be dust-tight. In most mines they are most unsatisfactory at the present time.

3596. You think that ought to be dealt with?—Yes, I think all the tubs should be made dust-tight, either by having iron tubs or iron bottoms, or by dealing with the joints of the wood boards.

3597. In many mines the tubs are fairly dust-tight?—Yes, some of them.

3598. And some are bad?—Some are very bad indeed.

3599. (*Mr. F. L. Davis.*) You do not mean closed on the top?—No, but the dust should not be allowed to come out of the sides or bottom.

3600. (*Chairman.*) I suppose if they were dust-tight there would not be any necessity to get the trams themselves watered?—I think they should water the tops where the haulage speed is eight or nine miles an hour. I intended to have brought a plan of a dust-tight tub which has been recently adopted at the Whitwood Silkstone Colliery, but I had not time to get it. It can be sent on.* I should like to say I think it is a good thing to water the trams before they leave the in-bye station; and probably it might be done on the way, too. That, I know, in several cases has had a very good effect, and it did not require a very large quantity of water.

3601. What is the result of all this watering on explosions. Do you find that where a mine is properly watered, and where they have the improved types of wagon, and everything is done that can be done, there are very few explosions?—You see, we have had none for 10 years.

3602. You have had 23 persons injured?—But they were not on haulage roads.

3603. However, you think there is a great deal more might be done than is done at the present time in your district in the way of watering the mine and preventing the dust getting into it?—Yes, watering the mine and dealing with the dust question.

3604. With regard to ventilation under Rule 1, do you think that is all right?—Yes; I have had no difficulty with that, but still I think, as a rule, a cap on a flame should be the standard.

3605. You think you, as a mining inspector, ought to have power, if you go down a mine and see a cap on a flame, to order the men away immediately?—I think so. As a matter of fact it is done now in my district.

3606. There is nothing in the rule which says that the cap is to be the test; therefore, I suppose, the owner might raise some objection?—He could, if he liked.

3607. But in point of fact he never does?—In point of fact he never does. I think it may be taken in Yorkshire, if they were to see a cap on a flame in a working place, they would order the men out at once. Of course, there may be cases where in removing a fall there might be a slight cap, and they might keep the men there while they were doing something in connection with the fall. It would be such a small quantity that it would not be necessary, under the circumstances, to order the men out.

3608. In such a case you say the owner or manager ought to be able to keep the men at work?—Yes, or else the danger would continue. He is bound to do something to remove it.

3609. With regard to the cap, we are told that some lamps are much more sensitive than others. How would you deal with that?—I would take the lamp in use at the mine at the time.

3610. Whatever it was?—Yes.

3611. You think that ought to be the standard laid down, that a cap on a lamp in a working face should be always considered a sign of danger, and the men should be instantly withdrawn?—Yes, I think so.

3612. In your district the men would not be kept on at work if there was a cap on a lamp?—No, the men are withdrawn if there is a cap on a lamp.

3613. In all your mines?—Yes.

3614. What do you say with regard to the use of safety-lamps in general under Rule 8?—As a rule we have had no difficulty in getting safety-lamps introduced where it has been necessary, but I think the rule should state where gas has been found in a coal-mine lamps should be adopted afterwards.

3615. For how long?—For ever. The fact you have had gas shows you it might be there again. That is the danger signal, and it may occur at any time in that mine.

3616. What would be your test of the quantity of gas?—It is difficult to say the quantity, because I think any quantity of gas is dangerous; any indication of gas is indicative of danger.

3617. (*Mr. Cunynghame.*) If there is any indication of any gas on any lamp you think they ought to have safety-lamps always?—Yes.

3618. If you have not safety-lamps, what other indication would you have?—You would have an ignition or injury to a person. I mean on gas being detected.

3619. (*Chairman.*) Where gas has been detected, even in small quantities, you say for ever afterwards the mine ought to be worked only by safety lamps?—That is my opinion.

3620. Are there any Special Rules about the use of safety-lamps in your district?—No Special Rules at all, except as to the treatment of the lamp, but not as to the introduction.

3621. Then what do you say about the type of safety-lamps and its construction?—I think the use of screw locks should be made illegal. We have not many. There is a table in my Report for last year which gives the number.

3622. You think that lamps screw-locked ought not to be used?—They are principally used in one or two mines for officials, but I do not agree with it. I think a lamp should have a lock which cannot be opened surreptitiously, even by an official.

3623. You would prohibit altogether the use of screw-locks?—Yes.

* See Plate V.

Digitized by Google

Mr. W. Walker

18 Oct. 1906.

3624. There are still 4,534 lamps in your district fitted with the old-fashioned screw-lock?—Yes, out of a total of 99,000.

3625. Then, if you had your own way you would insist that all those lamps should be done away with?—Yes. This number will be reduced. Several firms have agreed to adopt other locks.

3626. Have there been any accidents owing to screw-locks being tampered with?—I do not know that there have been any accidents, but I have known many cases where they have been tampered with.

3627. Have you anything to say with regard to the kind of safety-lamps to be employed. Have you any preference for one over another?—I have not; but I think that a system of testing safety lamps, or the type of lamp, might be adopted with advantage.

3628. Would you suggest any system?—In the same way as you test explosives. I think you might have some testing station where a type of lamp should be tested before it is put on the market.

3629. (*Mr. F. L. Davis.*) A Government station?—Yes.

3630. (*Chairman.*) That it should have passed for the type a certain test, or else should not be used?—Yes, I think so—to test the type of lamp.

3631. Is the examination of lamps carried out to your satisfaction in your district?—Yes, the lamp is examined before it is given out at the lamp cabin, and it is also examined by the "hanger-on" at the bottom of the pit.

3632. You think these examinations are carefully conducted?—Yes. There is a point which I should like to mention, namely, that there is a practice in some mines of using safety-lamps without the bonnet or shield, on account, they say, of the liability of a lamp getting to a mine without a gauze. I do not think it is very desirable that it should be allowed, and I think that all lamps should be so constructed that a lamp cannot be put together if the gauzes are not in. I know of two cases where lamps have gone a long way into a mine without gauzes. One was at Usworth, not long after the explosion there.

3633. But I think you said all these lamps were examined by two or three people before they were used?—They were examined on the surface very carefully, and I should say that all the arrangements were very good. But, after all the men had gone down the pit, two gauzes which should have been in the lamp were found on the table in the lamp cabin.

3634. How was that? Would they not have noticed that if someone had properly examined the lamp?—It should have been noticed; but I say that if the lamp had been made so that if could not have been put together without the gauzes they could not have been left behind.

3635. It does not seem that the examination of the lamp was very satisfactory if the gauzes were not put in?—The system was very satisfactory, and I know that the men who examined the lamps were very good men indeed, but they did not notice it. There would probably be 2,000 lamps going down that shaft, and securely locked." Then that was not done, if those once in ten years, perhaps; but the danger was there, all the same. It was in a mine in which there had been an explosion about a year before.

3636. But the rule says: "A competent person, appointed by the owner, agent, or manager for the purpose, shall, either at the surface or at the appointed lamp station, examine every safety-lamp immediately before it is taken into the workings for use, and ascertain it to be in safe working order and securely locked; and such lamps shall not be used until they have been so examined and found in safe working order and securely 'ocked." Then that was not done, if those two lamps happened to get down without gauzes?—There were two gauzes belonging to one lamp.

3637. That is to say, one lamp passed out of 2,000?—Yes, there is no doubt that the man who examined it was guilty of a breach of the Act. But the danger arose, and the lamp got into the pit, and if what I suggest were done that could not possibly happen.

3638. (*Mr. Wm. Abraham.*) Was it through having the shield on?—Yes, the shield was on. There are some colliery managers now who say that they would rather not have the shield, and so be sure that the gauzes are in, but the lamp is not so efficient then.

3639. Quite so; but was it because the shield was on that the man failed to detect the absence of the gauze?—Yes, I daresay.

(*Mr. F. L. Davis.*) There is a covering over the gauze, and the man might not notice it.

3640. (*Mr. Smillie.*) Would it be possible for one competent man to examine carefully 2,000 lamps in a morning?—There would be twelve or thirteen examining at the time, or even more.

3641. (*Chairman.*) But the absence of a gauze, or one or two gauzes, would not be likely to be noticed unless a man looked very carefully at the lamps?—It did pass through this man's hands, who was a very careful man; there had been an explosion at that colliery about twelve months before, and the whole system had been reorganised, and was as good as it could be.

3642. (*Mr. Wm. Abraham.*) Your suggestion is that the lamp should be so constructed that such an accident would be impossible?—That it would be impossible.

3643. (*Chairman.*) How could that be done with the present lamps? Would they have to be altered slightly?—With some of the present types of lamps it is so now.

3644. How could you alter the lamps in which it is not so?—It could be done.

3645. Would it be a very expensive matter?—No, not very expensive.

3646. How long is the life of a lamp?—It is some time.

3647. So that if you waited until the present lamps were all worn out you would have to wait a long time?—I should not wait until then. They would probably have a big explosion before that.

3648. (*Sir Lindsay Wood.*) Very few such accidents have occurred?—I know of only two such cases.

3649. Out of how many lamps?—I should not like to say—some millions.

3650. (*Mr. Smillie.*) The man might have come up the pit with that lamp and not have discovered it until afterwards. That was the only one discovered?—Yes.

3651. (*Chairman.*) Is there anything more that you would like to say about lamps?—I do not think so.

3652. With regard to shot-firing. In your district is shot-firing prohibited during the shifts?—No. I do not think it would be practicable to do that, because so much coal is got by shot-firing in the coal itself. That, to a great extent, is due to the increase in coal-cutting machinery.

3653. (*Mr. F. L. Davis.*) Do I understand that there is no shot-firing during the shifts?—Yes; we have it in the coal a great deal. I say it would not be practicable to stop it, but I think in roads and ripping on the haulage roads, and that sort of thing, I should prohibit it during shifts.

3654. (*Chairman.*) You have no special rule to that effect in your district?—No, no rule at all.

3655. (*Mr. Wm. Abraham.*) Do I understand you to say that shot-firing during shifts is increasing in consequence of the introduction of coal-cutting machinery?—Yes, there is no doubt about that.

3656. (*Chairman.*) It has been suggested to us that there may be danger, and that there sometimes is danger, from a great number of shots being fired at one time. What do you say to that? It is suggested that there ought not to be more than two or three shots allowed to be fired at a time?—I say that as a rule there is only one shot fired at a time, except in odd cases in stone drifts, where it may be necessary to fire more. But I think, considering everything, we have very, very few accidents with explosives.

3657. (*Mr. F. L. Davis.*) How do you suggest that the increase in shot-firing is owing to the use of coal-cutting machinery? Is it to loosen the coal?—To loosen the coal after it is cut. It either comes down in very large pieces, so that you have to use a shot to break the coal up, or it comes down and wedges itself, and you have to use shots to blow it out.

3658. (*Chairman.*) How do you deal with miss-fire shots in your district?—We have no special rule dealing with miss-fire shots at all. The miss-fire shots are very few, and I think they are all dealt with as required by the general rule.

Digitized by Google

3659. In some districts they have a special rule about miss-fire shots which seems to give great satisfaction. That rule is: "No missed shots shall be unrammed, but in all cases a fresh hole shall be drilled which shall not be within 12 inches of any hole which has missed fire, and shall, so far as practicable, be parallel with it. Should the missed shot contain a detonator the shot-lighter shall, before firing the fresh hole, attach a string to the fuse of the missed shot, and secure it to a prop or to the cable. Immediately after firing the shot-lighter shall, with his hands only, and with the greatest care, search the coal or stone, and if he fails to find the detonator, or is satisfied that it has been exploded by the second shot, he shall cause the coal or stone to be loaded with the greatest care and sent to the surface for further examination. Should the missed shot not be dislodged, further holes must be drilled and fired until this is effected. He shall report the circumstances to the under-manager without delay, and hand the detonator to him when found"?—That is a very good rule.

3660. You would like to have it in operation in your district?—I should. I do not think there would be much objection to it.

3661. With regard to the keeping of explosives by miners, I think it is generally agreed that miners ought not to be allowed to keep gunpowder in their houses, as they can now, without a licence?—Yes, I quite agree with that, and I think that explosives should be supplied by the owners themselves.

3662. You mean that that should be compulsory?—That it should be compulsory. I will tell you why. I had a case last year; after there had been an explosion at a mine in South Yorkshire by which a deputy was killed I saw the manager. He was bound to use a permitted explosive, and I got him to adopt safety-lamps. The men resented this very much, and struck for six or seven weeks; but eventually they agreed and went in again; the manager thought they were buying their explosives outside, and he would search them or have them searched at some time to see whether they were taking in the proper explosives, and when he did so he found that, wrapped up with their meals, and in their pockets they were taking in gunpowder. So that is one reason why I think it is absolutely necessary that the explosive should be supplied by the owner.

3663. (*Mr. Cunynghame.*) You mean taking gunpowder down into a dry and dusty mine?—Into a mine in which there had been an explosion of gas; it was not dry and dusty.

3664 Still, it was a mine in which permitted explosives were to be used?—The case is reported in my report for 1905. It was at the Stocksbridge Mine. I produce a newspaper cutting of the police court proceedings which took place afterwards. (*Handed in.*)

3665. (*Chairman.*) This says: "The men had an impression that there was more strength in these explosives than the ordinary ones supplied officially." But if they thought that such explosives would enable them to get more coal in a given time I should have thought that, although they were obliged to get their explosives from the owners, still if they thought it would be desirable in their own interests to get some other explosives they would probably do so, and put them in their pockets. I do not see that making them buy the explosive from the owners would prevent their taking it down in their pockets if they thought they would do so?—I do not suppose they would ever have gone to the other people to get these explosives at all. In this instance they go to the other explosive agent to get the particular permitted explosive which is in use.

3666. You mean that they would have to go and get some explosive from somewhere else, which would take them out of their way?—It would in this particular case, because it is a very out of the way place on the moors.

3667. So that such a system would tend, at all events, to prevent the illicit use of explosives, if they could have a convenient shop at which they could get them close to the pit's mouth where they were working?—Yes.

3668. (*Mr. F. L. Davis.*) I understand you go further still, and say that you would make it illegal for the men to procure their explosives anywhere else?

3669. (*Chairman.*) Yes, so that if you found explosives upon them which were not of the authorised type you would know they had got them from somewhere else, and you would fine them for a breach of the rule?—I would not say that I should make it illegal, because there might be cases in which if they had an explosion and had to make use of the permitted explosive very quickly they could not get that permitted explosive from the owner of that mine. *Mr. W. Walker.* 18 Oct. 1906.

3670. So that they might have to go elsewhere for it?—Yes, in extraordinary circumstances.

3671. But then they would have to justify the possession of any explosive which they had obtained?—Yes, it would have to be authorised.

3672. Is there anything more that you would like to say with regard to explosives, and the particular type of explosive you would prefer?—No, except with regard to the case of bobbinite; but that has been inquired into already.

3673. Yes, the use of bobbinite is under consideration. Have you special rules with regard to timbering?—Yes, we have special rules.

3674. What is the condition of things with regard to timbering accidents in your district?—I am disappointed that the timbering rules have not reduced the number of accidents. There is a slight increase, as a matter of fact.

3675. To what do you attribute that?—I think in many cases more supervision is required, and that originally the distances stipulated by the managers in many cases on the notice was too great. But these distances, I should say, have been reduced in most cases.

3676. I see in 1905 there was the greatest number that you have ever had of deaths by falls of ground—I give separately the falls at the face.

3677. It has been suggested to the Commission that the very elaborate rules for timbering which have been put forward may have led mining engineers and workers in mines to have been somewhat less careful than they were before, and that they might have said: "So long as we work under these rules it is all right," and they might have thought that if they had the proper distances between the props, and so on, which was specified, it was not their business to take any further precautions. That is what has been suggested?—I think they rely too much upon the distances—that a man sets his timber or his roof support at a distance which the notice says it shall be, 6ft., 4ft., or 5ft., and he does not pay sufficient attention to the roof in between those distances.

3678. He simply assumes that if he has done what he is told he must do he has done enough?—Yes, very often they do. I have thought that perhaps it would be better to require the manager to stipulate distances even in roads, and where repairing is done within which temporary timber should be set by the workman within a certain distance of himself, because that is where the accidents happen and where the man is killed—where he happens to be working. I think that in some cases more might be done in that way by the setting of temporary timber by the men themselves to protect themselves, both at the faces and on roads.

3679. Would you have a special class of men, that is to say, acting as deputies to set timber, or would you leave it to the men?—The men would have to set it themselves; you could not possibly have a deputy to set the timber which I refer to. It would be simply that if you stipulated a distance beyond which a man should not work without timber—2ft. or 3ft., as the case might be—he would have to set it himself.

3680. Do you suppose that he would do it?—Well, the officials would have to see that it was done. I think probably that if more bars were set across the face we should have fewer accidents, because in many mines there is a wagon road or tub road between the first row of props and the coal, and if bars were used at right angles to the face, that would prevent some of the falls which we now have.

3681. Then you think a good deal more might be done than is done in the direction of having special timbering rules, or perhaps a general rule about timbering, applicable to all mines?—I do not know that you could do it by a general rule. I think it would have to be done more by a special rule, because

Digitized by Google

Mr. W. Walker.

18 Oct. 1906.

the circumstances would vary so much in different districts, and even in different mines.

3682. As regards special rules for different mines, would you suggest special rules for timbering, not to apply to the whole of your district, but only to certain mines in it?—I think I should word the rule so that it would apply to all, and so as to make it necessary for the manager to stipulate the distances, as is done now.

3683. Then if you had a special rule applicable to your district, where there are various kinds of mines, you could not have a general rule applicable to all kind of mines?—I do not think so. I think the circumstances are so different—if you take the timbering rules, they are not at all alike, and they were all established about the same time.

3684. I thought you said that in your district there were different kinds of coal mines, and that you might have a special rule which would apply to all your mines. If that is so, I should have thought you might have had, perhaps, a general rule as to timbering which would apply to all mines throughout the kingdom?—Well, we have a general rule now.

3685. Yes; I mean something more?—I do not think you could have more than that.

3686. You think the present general rules with regard to timbering are sufficient as general rules, and that you cannot do anything more by altering the general rules?—Probably more could be done, but I do not say that it would be applicable to the whole country.

3687. But it would be applicable to all the coal mines in your district?—Yes.

(*Mr. Ratcliffe Ellis.*) General Rule 21 is the rule which applies to this.

3688. (*Mr. Wm. Abraham.*) In your opinion there is a class of timbering to be done in the faces or about the faces that must be done by the collier himself?—The additional timbering that I suggest must of necessity be done by the collier himself.

3689. And you suggest that in addition to sprags and props he should be able to put in timbering, cross-bars, and so forth, so as to prevent the top or side falling on him in the space which he works in?—What I suggest is that he should set temporary timber for his own protection within a certain distance of himself.

3690. That would mean that every miner must needs be a timber-man?—In Yorkshire every collier does set his own timber.

3691. Then the safety of the man in that spot depends very much whether he is a practical or skilled workman or not?—It means that one of them should be. Of course, the systems may be different. With us we have three or four men working in the same gate or the same place, and one of them is a man who is a qualified man to set timber, and he is the man who sets all the timber, and he draws it also. The deputy is an official really who simply goes about to see that these rules are carried out.

3692. Of course, we do not now refer to deputies in the sense of officials, but as describing a man taking the place. You say that one man can engage two, three, or four men to work with him?—No, I do not say that at all; I say that there is one man in every place who is a qualified man to set timber: I do not say that he engages anybody.

3693. (*Mr. F. L. Davis.*) And that they work three or four together?—Yes.

3694. (*Mr. Wm. Abraham.*) As a rule, in your district, how many men do work together in the working faces?—It varies; in some mines we have as many as four, and in others two, but never less than two. There is a trammer, who works in the face also.

3695. But the trammer is not a coal-hewer?—Yes; he is a man of twenty-four or twenty-five years of age, as a rule—sometimes forty.

3696. Quite so, but when he is a trammer he is not engaged as a coal-hewer, is he?—He does both in some instances.

3697. (*Mr. Smillie.*) You mean that the hewers do the tramming?—Well, one of the men does the tramming, and in any spare time he gets coal too; and I do not know that it is a bad thing training a man to do that.

3698. (*Mr. Wm. Abraham.*) I do not say it is for a moment but my point is this: I think you agree that in every coal face, every adit, and every stall, there should be at least one competent man, competent to timber, as well as a coal-hewer?—With us it is of necessity, and under the Act it is bound to be so, that a man must either set timber, or he must come out in case of danger: he must not stop there and work—he must either set timber or he must come out until the danger is dealt with.

3699. (*Mr. Ratcliffe Ellis.*) Is that provided for in a Special Rule. General Rule 21 says that it shall be made secure?—I am rather quoting one's experience in Durham. They have a Rule there (I think it is Rule 103, and it is a General Rule, too) that if a man for any reason finds his working-place unsafe, he must withdraw.

3700. (*Mr. Wm. Abraham.*) It is a General Rule?—Yes.

3701. (*Mr. F. L. Davis.*) I understand that you say the system there is that if three or four men are working together one of them would be a skilled timberman, another would be doing most of the tramming, and the other one or two would be hewing the coal?—Yes.

3702. (*Chairman.*) With regard to the drawing of props, do you suggest that gablock and chain should be used in all cases?—I think it would be better. I understand where that is done in one district the results are satisfactory. But, of course, in all cases a man must cap a prop—he must ease it before he uses even a gablock and chain. There is one thing in the Yorkshire Rule which I think is wrong: the wording of the Rule is, "Wherever timber has to be withdrawn from the waste or other disused parts of the mine, the prop-drawer shall have with him a 'ringer and chain,' 'dog and chain,' or other suitable appliance ready for use." That is often read as meaning 30 or 40 yards away.

3703. You think that Rule ought to be differently worded?—I do.

3704. Do you think it is a necessity that the man should have those appliances quite close?—Yes, or else there is a temptation not to travel the 30 yards.

3705. (*Mr. Ratcliffe Ellis.*) I thought the word was "available"?—"With him."

3706. You have before you your book of Yorkshire Rules, containing the last timbering Rules?—Yes. In connection with the figures for Yorkshire I should mention that some very large mines are being opened out, and they are at very great depths, and, therefore, there is much greater pressure on the roofs: that may, to some extent, account for some of the increase of accidents.

3707. (*Chairman.*) What do you say with regard to haulage accidents. Have there been many haulage accidents recently in your district?—I do not think we have more than the average, but many of them are due to preventable causes, such as illegal riding, going in front of tubs, and such like. I think it should be made compulsory to provide more room on all horse haulage roads.

3708. But can all haulage roads be widened: would it be possible to widen all haulage roads?—I do not think it would be difficult to give them at least, say 12 ins. on each side of the tubs.

3709. You think that should be done, even in old mines—that the mine-owners should be obliged to widen the haulage roads by at least 2 ft.?—I have found many accidents happen from boys riding on the shafts or limbers, and the place being so narrow that the boy catches his toe probably on the side, and then upsets him, and he falls in front of the wagon.

3710. Are there any precautions which you would like to suggest?—I do not think I would suggest any other precautions than those which are taken. In some cases, I dare say, the road might be better laid, and there might be a more uniform gradient, but that would have to be effected by a Special Rule.

3711. With regard to boilers, are you satisfied that the examination of boilers is carried out satisfactorily?

Digitized by Google

—I am not quite satisfied with our present Special Rule. It says that a boiler shall be well cleaned out every two months, but it does not say anything about it being necessary to inspect it after it is cleaned out. I think the Special Rule should also state that the boiler should be thoroughly examined at the same time, and a report made of its condition.

3712. Every two months?—Every two months.

3713. Then would you provide by Special Rule for inspection every two months?—Yes.

3714. What do you say with regard to shaft accidents from overwinding?—I think, considering the number of winds, the results are very good. The enginemen are a very good class of men and there are very few mistakes made. Taking the millions of winds that are made every year I do not think the number of accidents could be very well reduced.

3715. Have you any opinion to express about safety-catches. Do you have safety-catches in your district?—We have none at all, and I do not know that I am in favour of them, because I know of one instance in which such a catch caused an accident.

3716. In what way?—The safety-catches came into operation as the cage was going down. There were 15 yards of rope paid out on the top of the cage, and then the cage fell away and cut out the wooden guides and dropped two men to the bottom of the shaft. With wire rope guides I am afraid that any catch of that kind would probably break the wire rope guides.

3717. You would probably have to have wooden guides?—That was a case of wooden guides where the accident happened. But in Yorkshire at most of the mines they are wire rope guides.

3718. You think it is very difficult to fix safety-catches to wire rope guides?—At present I am not in favour of them.

3719. With regard to the re-capping of winding ropes, do you think that is sufficiently attended to?—No. I think there should be a General Rule that re-capping should be done at least every three months. We have a Rule that in the sinking roads it should be done every six months.

3720. You think every three months would be better?—I think the oftener you see the inside of a rope the better. There was an accident at one of Messrs. John Brown and Company's collieries, in which seven men were killed by the breakage of a rope, and although the rope had not been on very long there was internal corrosion, which could not be seen by any external examination. Probably if that rope had been re-capped the corrosion might have been detected.

3721. What do you think about having bars or gates at the cage ends?—I think that is a very good thing. I give some particulars of one which is being adopted in my Report for last year: that is, an automatic gate that works as the cage goes up and down. May I mention the description of the cap or socket?

3722. Yes?—I have made some experiments in conjunction with Mr. Gerrard and other people as to the strength of different caps or sockets, and I find that with the ordinary method of socketing you only get about 50 per cent. or 60 per cent. of the breaking strain of the rope, that is, that a socket will draw when it gets about 50 per cent. or 60 per cent. of the breaking strain of the rope. There are several other methods of capping, which practically give 80 per cent. to 100 per cent.; one is a solid capping with white metal run in. I mention it in my Report for last year, and so does Mr. Gerrard, giving some particulars of how that should be carried out.

3723 (*Mr. F. L. Davis.*) Is it any particular capping that you recommend?—This white metal one is the one which has given the best result.

3724. Is that only made by one firm?—I think they make it themselves at the colliery; most collieries do the capping themselves.

3725. (*Mr. Wm. Abraham.*) Do you call it "white metal"?—It is a white metal; it is something like printing type metal.

3726. (*Sir Lindsay Wood.*) How is it fixed to the rope?—About nine or ten inches of the rope is spread in the solid socket, and then this white metal is run in it, and it forms a solid cone, so that you get a section with the wires dotted all through in amongst the metal. It does away with the bending back of the wires, which is the weak point in the ordinary socket. In the ordinary socket the place where the wires are bent back is the point where they always break.

3727. It is run in hot?—Yes, but not at a very great temperature. The metal has a low melting point: that is one of the things that needs to be carefully watched in putting in this metal—to see that it does not destroy the temper of the wire.

3728. (*Chairman.*) You say that you did find sometimes the rope perished in three months, but that you could not discover that by looking at the outside of the rope?—I did not say three months, I said that in that particular case it had corroded.

3729. And you thought that three months would be a reasonable time for a rope to be allowed to go without being examined?—Yes. I know of three cases where ropes have broken, and you could not possibly discover anything wrong with them by external examination.

3730. Would the cap possibly cause the corrosion?—It would be found there, I think.

3731. But the corrosion might have been in any part of the rope, I suppose?—In two cases which I have in my mind the rope broke at the point where it was standing at the pulley—that was when the cage was at the surface, just upon the pulley. But I think the corrosion would have been seen if the rope had been re-capped, because they take sufficient off each time to get to about that point.

3732. But might not the rope corrode anywhere?—It is more likely to be at the cap, I think, because any water that gets in will run to that point.

3733. Exactly; so that you would not think it likely that although a rope might corrode somewhere near the cap, possibly in three months or a little over that time, the rope would be corroded anywhere else along its length?—If it did it would corrode at the cap also.

3734. (*Mr. Smillie.*) In the case of the accident at John Brown and Company's colliery, is it not a fact that the corrosion took place some considerable distance from the cap?—I do not think it was a very great distance from the cap.

3735. I think it was. I was present at the inquiry at the inquest?—I was not present, but I read the description. It was not a long way off the cap.

3736. (*Mr. Smillie.*) The rope certainly appeared to be perfect on the outside, so far as external examination was concerned, but it showed internal corrosion.

(*Chairman.*) So that the re-capping would not have shown anything?

3737. (*Mr. Smillie.*) It would not, in that case?—I do not think that would follow. It might break at another point, and there might be corrosion also at the cap. Mr. Stead made some experiments with that rope, and I think he found that the strength of the rope had deteriorated all through its length, did he not?

(*Mr. Smillie.*) Yes, that is so.

3738. (*Chairman.*) With regard to the question of surface sidings being too much cramped, that is a frequent cause of accident, is it not?—Yes, men passing between wagons or across roads and being crushed between the uprights and the wagon itself. That is a matter which is very unsatisfactory in many places, especially at the older collieries; but it is due to a certain extent to the larger railway wagons which have been adopted recently. It could only be altered at the old collieries at a great cost, but with all new collieries I think it would be wise to have some Special Rules dealing with the question of surface sidings. It is quite impossible to give more space at some of the collieries. At one colliery in particular, the one where the rope broke, there is the Great Central Railway on one side and the Midland Railway on the other, so that they would not have room to do it. But at all new collieries, I think, it should be done.

3739. With regard to Special Rules, the present mode of establishing Special Rules has been considered to be cumbrous. Do you think that there can be any alteration made in the system?—I think at present it is cumbersome and unsatisfactory, but probably some

Digitized by Google

Mr. W. Walker.

18 Oct 1906.

method such as the one under the Factory Act might be adopted. I will not say that that would be the best means, but something of that kind would be better.

3740. That is to say, instead of having the present very lengthy arbitration, that the Secretary of State should give notice of any rules which he thinks ought to be adopted, and that owners should be invited to send in their objections, and that then there should be some sort of hearing?—That in the case of objection being made there should be an inquiry. I think that would be better. Before we leave the question of Special Rules might I say that I think the Special Rules in Yorkshire are not quite satisfactory; they are too indefinite, and require amending considerably. For instance, the special rule with regard to boilers simply says that the boilers should be cleaned, and it does not say anything about examination. Then with regard to shots, the special rule simply says that shot firing shall be carried out as required by the Act. I think it is far too indefinite, and should go more into detail in many cases. We have some rules for sinking pits which are much better than the ordinary rules, and we also have rules in connection with dealing with ganister in ganister mines. I think you have copies of those.

3741. Then you would suggest that the Yorkshire rules should be thoroughly overhauled?—I think they require it.

3742. And you would be prepared, if necessary, to make suggestions. With regard to the second investigation under Section 45 of the Act, do you think that the second investigations are sufficiently numerous?—My experience of coroners' courts has always been satisfactory, and I think in cases of big accidents the causes of the accidents have been ascertained. But I can imagine that it would be an advantage to have a second inquiry if it was thought, or if the Secretary of State thought, that the whole of the circumstances had not been elicited at the coroner's inquiry.

3743. Do you think that the Secretary of State should in all cases be the absolute arbiter as to whether a second inquiry should be held. For instance, would it be desirable that relatives of deceased men, or that a certain proportion of the miners themselves, should have the power of asking as a matter of right for a second inquiry?—If there were any party aggrieved and not satisfied I do not see why they should not have another inquiry and take extra evidence which they might think was necessary, but it would be necessary to ensure that all parties were represented at that inquiry.

3744. However, you think you have not in your own district suffered from the want of a second inquiry. You cannot remember any case in which you thought that a second inquiry would be desirable and in which it has not been held?—No; I think in every case my experience of the coroner's court has been that it has been satisfactory, and that the cause of the accident has been got at by the evidence.

3745. Now with regard to rescue work and ambulances?—The ambulance that it is necessary to provide under the Act and the splints, and everything, are very satisfactory, but I found, on going into the question a year ago, that the number of men who had the necessary knowledge to use these appliances was very few. I got some returns, and the number was only about 4,000 out of 113,000. But since then I have organised an Ambulance League, and arranged competitions, and the progress with that is very satisfactory. I think that next year we shall have a great increase in the number of persons instructed in first aid.

3746. Do the miners seem to take to those classes, or whatever system you have?—Yes, they are doing so now. I have tried to arrange to get representatives of the miners to be on the committee of management, and the Miners' Union is taking an interest in it also.

3747. Do you get the working miners to serve?—Yes. I think also every manager should hold an ambulance certificate, as well as every official.

3748. That is to say, every assistant manager?—Every official.

3749. What do you mean by "official"?—The officials in the mine.

3570. That is to say, anybody who is in an official capacity in the mine?—Yes.

3751. Have you had any experience of rescue corps in your district?—Yes; my district is the only one in the kingdom that has a rescue station, and that is being extended. I have now got another one under consideration for a district which is called the Wath District, for four or five very large collieries; and there is another group in which the owners of three large firms have agreed to join in a station, and I think there will be probably a fourth. That is all in South Yorkshire, and that will cover the ground pretty well there.

3752. What about these rescue appliances. Have you tested them?—Yes, I have seen four or five of them.

3753. Have you any opinion which you would like to give the Commission with regard to their merits?—I think they are all good. There is the Shamrock type, the Dräger, and the Pneumatogen; the latter is a very small instrument and very light, which may be of great use, to be taken in by a rescue party for the purpose of bringing men out through any noxious gases. There is also one which Mr. Garforth, of Altoft's, has brought out, which he calls the "W.E.G." I think that is very good; and he is doing very good work at his collieries in an experimental gallery which he has there, which is fitted up very much as the condition of things would be after an explosion.

3754. Then you do not wish to say anything as to the relative merits of those various appliances?—I should not like to, because I think that by the establishment of these groups and the experience that will be got with them the appliances will all be improved considerably, and that that is the only way in which they will be improved. I should like to emphasise the necessity of having the men properly trained if they are going to be of any use, because the training of the men is essential.

3755. That is to say, in using these things?—Yes; no man can put them on and go straight into a pit.

3756. You think that the appliances ought to be kept in stock, and that the men ought to try them and to see how they get on?—Yes, and they ought to be used every week, so that one knows they are in an absolutely perfect condition. If they are not they would be a trap—a man would put one of these appliances on and he would be lost. The men would have to be trained every week, and the idea we now have is to have three nights a week told off as nights on which these men will be trained for the various collieries attached to the group.

3757. You have these instruments now at your rescue stations?—Yes. The men have trained for the last two or three years three nights a week.

3758. Have you a sufficient number for training purposes, do you think?—No, not at present. The matter is just in its infancy; there is only one station established.

3759. How many instruments have you at that station?—I could not say off-hand—probably fifteen.

3760. Do you think there ought to be more, or do you think that fifteen at each station would be enough?—I think that is sufficient, but there ought to be more stations. There is another matter which I should like to mention on that subject which is a very good thing—namely, that these companies agree that in case of accident the whole of the men trained at that station should be available for that pit—not only the men who are trained belonging to that firm, but the whole of the men trained belonging to the other firms as well, so that you get a large number who would be able to wear these instruments in case of explosion or other accident.

3761. (*Mr. F. L. Davis.*) Are you training them with the different kinds of apparatus?—Yes, all those four different kinds.

3762. (*Chairman.*) With regard to the miners' disease called ankylostomiasis, have you any knowledge of it in your district?—We have had no cases at all, and I do not think there is much likelihood of one, but conveniences are provided at shafts and at the haulage roads where men are working, and the men use them. I think that the provision of those conveniences should be compulsory, even from a sanitary point of view.

3763. Do you find some difficulty in making the men use those conveniences?—No, I do not think there is much difficulty; there might be in odd cases.

3764. With regard to the system of examination, how does the Examination Board work in your district?—I think the results have been good so far, but I should

Digitized by Google

prefer a Central Board, with a uniform standard of examination for the whole of the country. There would still have to be two or three local examiners for the oral part of the examination, which I think is of importance.

3765. Yes; but then I understand that if you have central examinations a man who passes that central examination could choose his own district. Do you think that when he proposed to work in a particular district he should have to undergo in addition an oral examination in that district?—Yes, I think so.

3766. That is to say, that he should get a Certificate from the Central Board, and then if he comes to you with such a Certificate he ought to submit himself further to oral examination to show that he has qualifications which are special for that district?—Well, I should not arrange it in that way. I think it would be necessary to have at least half a dozen examinations a year. It is not fair to a man if he has completed his qualifications, say, to-day, to make him wait for 12 months before he can be examined for a certificate. Therefore I should make these examinations for certain districts at certain dates, and on those dates I should have the local examiners to hold the oral examination, because I take it that on those particular dates the majority of the candidates would belong to the district in which the examination was held.

3767. You would have the oral examination conducted at headquarters?—The oral examination would be conducted in the district.

3768. That the Central Board should come to a district and hold an examination in that district?—Yes.

3769. And that then they should examine the candidates and give them a general certificate of proficiency, but in addition to that you would have an oral examination conducted by local men?—Well, the whole examination might be conducted in that way; but the examination questions would be set by a Central Board.

3770. There should be certain examination questions set in writing which should be common to the whole kingdom?—Yes. I think the standard ought to be uniform.

3771. But with regard to special districts, any man who proposes to work in a special district should have, in addition, to pass an oral examination conducted in that district by persons who are competent to examine for that district?—Yes.

3772. There seem to be two different forms of examination. On some Boards they merely insist that a man shall get a certain maximum number of marks, and they do not care how he gets them, and on other Boards they appear to insist that the candidate shall pass in every subject?—Yes. I think in the case of the Yorkshire Examination Board hitherto the candidates have simply had to get a percentage of the total number of marks in order to qualify. But that question is now being considered, and I think in future they will have to qualify in every subject. At present it is not so.

3773. So that, for instance, a man might know nothing about fiery mines, and yet he might get a certificate, because he answered the other questions very well?—Yes, it is quite possible. He would have, of course, to answer the same questions as any other candidate as to fiery mines.

3774. Yes; but I suppose in this examination there would be all kinds of questions put, not only with regard to fiery mines, but about other things, and if he knew nothing about fiery mines but knew about other matters, he might get through?—Yes.

3775. Without even theoretical knowledge?—Yes. I do not know whether it would be possible, but I think it might be, for him not to answer any question about fiery mines and yet get his certificate; and that is an objection.

3776. Then you would not suggest that there should be a separate certificate for fiery mines?—Well, it is a very difficult subject. It is one which I have thought of very much. In some cases it would be perhaps a hardship to require that every man should have a practical knowledge of fiery mines. Taking a particular district like the ironstone district of Cleveland, where they have managers, and where the managers must have certificates, but where all the mines are worked by naked lights, it would be hard upon a candidate who could not get his certificate.

3777. It would be worse if he were to pass and produce his certificate, and no one could know from his certificate whether he was well up in fiery mines or not?—I think it might be met by having what you might call a Fiery Mine Certificate and a Non-fiery Mine Certificate; but it would want very careful consideration.

3778. (*Mr. Wm. Abraham.*) But would you allow those men to go as managers in your districts where there are fiery mines?—No; that ought to be made impossible.

3779. (*Chairman.*) As regards certificates for managers of metalliferous mines, do you think that managers of metalliferous mines should be required to obtain certificates?—If the requirements were made the same as under the Coal Mines Act, it would not affect Yorkshire at all, because there is not one mine that would require a manager. With regard to the metalliferous mines in Yorkshire, they certainly do not require certificated managers, because they never have more than four or five men in them, and the owner is probably one of them.

3780. You have had no practical experience about that?—I have had no experience of metalliferous mines which have been large enough to require a certificated manager.

3781. I suppose if you had certificates for metalliferous mines, metalliferous mines are so very different that probably you would have separate classes of certificates for them?—I do not know sufficient of the subject. I have seen lead mines, of course. The Coal Mines Certificate would not do, I agree.

3782. With regard to experience in foreign mines and Colonial mines, what have you to say. Do you think that if a man can prove that he has had experience in foreign mines that ought to be sufficient?—Yes. I think it would be a very good thing if the standard was the same in every case, if you were quite certain that the standard of the examination for foreign mines was equal to our own.

3783. And if you were quite certain also that the man had *bonâ-fide* worked in a foreign mine. It is more difficult to find out with regard to foreign mines?—Quite so; you would have to be certain that he had *bonâ-fide* worked in one, and that the standard of examination was equal to our own.

3784. I was not thinking of the examination. I was thinking of the question of experience in foreign mines. Now, before a man sits for examination, I understand he must show that he has had practical experience in the working of mines?—Yes. I think to a certain extent it would be a very good thing. It would tend to encourage men to get experience abroad in many good foreign mines.

3785. With regard to Colonial certificates, I suppose that would be dealt with in the same way?—Yes.

3786. I should like to ask you whether you think it would be an advantage if you had on your staff under your directions assistant inspectors more or less of the working-man class—the wage-earning class?—I do not know. I have already one who was appointed in 1885 under that system.

3787. He is one of your assistant inspectors now?—Yes.

3788. That is to say, a man who was originally a wage-earner?—He has been brought up practically in a mine.

3789. But I was rather thinking of assistant inspectors who would have a smaller salary, and who would occupy, perhaps, a subordinate position to that of the present assistant inspectors. Do you think it would be good to have people of that sort under you as a staff?—I think an inspector should be a man who is well qualified and able to pass his qualifying examination.

3790. Then you do not see that there would be any advantage in having a different class of inspector at a lower salary?—I do not think so.

3791. I understand you have nothing to say about plans. Is that so?—There is only one question which I should like to mention, namely, the question

Digitized by Google

Mr. W. Walker
18 Oct. 1906.

of abandoned plans. I think that the Act should require that if a mine has not been working for 12 months the owners should deposit plans of the workings.

3792. But what about the old plans of disused mines, which are extremely difficult, if not impossible, to verify. Do you consider that, generally speaking, they are correct?—I always get them certified as far as possible as being correct, either by inquiring from a person who knows, or by making inquiries as far as possible. But the point that I refer to is this: in the case of a mine which has been standing for six or seven years, some of the plant may be in that mine still, such as the rails, tubs, and so on, and the owners may say it is not abandoned, and I think, under the Act, we cannot say that it is. But it may be extremely difficult if that owner, who is an old man, dies, to get any plans at all. The plans should be deposited as soon as the mine had been standing, say, 12 months.

3793. With regard to recent mines, the plans in your district have been proved to be fairly accurate?—I have no fault to find with the plans in Yorkshire at the newer mines; they are very good indeed, and the survey is done by competent persons.

3794. (*Mr. Cunynghame.*) Since 1885 the output of coal in this country has increased considerably, has it not?—Yes.

3795. I will put it, speaking from memory, at from about 150,000,000 tons up to about 230,000,000 tons, or something of that sort?—Yes.

3796. The number of mines has largely increased?—Yes.

3797. And the number of men employed has largely increased?—Yes.

3798. But I do not think the numbers of inspectors have increased in a like ratio, have they?—No.

3799. I will put the figures to you: The total number of inspectors in 1885 was thirty-five, and the number at the present time is thirty-eight?—Yes.

3800-2. It is, therefore, a fact that the relative number of inspectors, the inspectorial staff, has not increased *pro rata* with the number of men employed, or with the output?—That is so.

3803. I should like to ask your opinion of inspectors who are what might be called the working-man or practical type. You are of opinion, I think, that the regular supervision of a mine ought not to be trusted to men who have not passed a reasonable examination and shown certain qualifications?—Yes. I think all mines inspectors should have passed such an examination.

3804. But is there not a type of work that such men might be useful in; for instance, in regard to the inspection of quarries, could you not usefully send round intelligent, and, we will presuppose, perfectly honest men, who had been overlookers, for instance, to see whether the derricks and things were properly put at quarries?—I should not have a sufficient number of quarries to keep a man of that kind employed in my district.

3805. But in districts where there are a number of quarries would not that method relieve you considerably if you could send a man round to see to that kind of thing, and to whom you could entrust that work?—Yes, if the number of such quarries were sufficient.

3806. Let me put a case which occurs to me: Supposing that in one mine it was felt that the general management of affairs was excellent, but that there was a good deal of carelessness with regard to setting props or sprags, and that there was a good deal of carelessness in detail, do you not think that a man of that sort might again be useful in reporting to you, provided that he was not allowed to go beyond his province or to report upon things which he was not fit to deal with?—He might, in that case; but I think so much of the time would be lost as compared with a man qualified to deal with other subjects for which he had been trained, and that the man of that sort would pass by matters in going to see to such things as you mention.

3807. But, of course, such a man as that would be content with a lower rate of pay than it would be necessary to pay to a man of the great knowledge that is required of an inspector?—Yes, but it might not be economical in the end.

3808. You would rather have one man of the better type than, say, three of the others, would you?—I think you would be able to get more useful work from him.

3809. Then I cannot carry it any further, but I wanted to obtain your opinion quite clearly. With regard to the improper work at the face, that is to say, not sufficiently setting props and holing props, I suppose it is really to a great extent the carelessness of the hewers themselves which brings about a large proportion of the accidents?—We do get cases where there are falls, and where it has been proved that there has not been sufficient timbering.

3810. We know that, in the first place, there are a large number of accidents from falls of roofs and sides, and so on?—Yes; I should think 50 or 60 per cent.

3811. I suppose a good deal of that could be prevented if one could make the men ideally careful?—Yes; that is what I said before—if they would only take precautions between the stipulated distances the accidents would be prevented to some extent.

3812. It would not prevent accidents altogether, but it would prevent them largely?—Yes; we always shall have some accidents, of course.

3813. Are a good many of the fines that are inflicted upon men inflicted for that sort of offence?—Yes, for not setting props in the stipulated distance. I would not say a great many cases, but there have been cases.

3814. In that sort of case would you prosecute in every instance, or would you be content with some system of fining?—I would always prosecute.

3815. Would you always prosecute where a man has been proved not to have set his sprag properly?—Yes, I think it is better.

3816. Either caution him or prosecute him?—Yes.

3817. Even in spite of the inconvenience of taking firemen or other overseers away from their duty for a day?—That is really a great inconvenience, because you take away the people who are supervising this work. That is one of the great inconveniences of prosecuting.

3818. You could not suggest any sort of domestic tribunal to which a man could be taken and punished for doing it?—I could not.

3819. It would be, I suppose, a good way of dealing with it if it could be done—to get some sort of tribunal which was fair?—Yes, but it would be very difficult, I think, to get a sort of tribunal which would be satisfactory to the men and to the owners.

3820. Yes; I am not prepared to suggest one. Now, with regard to check-weighing, you are familiar with the check-weighing clauses, particularly as to deductions for dirt. There is a great deal of difficulty with regard to that. Have you had any difficulties in such cases in your district?—I have had one case.

3821. Have you had complaints in your district about check-weighing?—One.

3822. I mean questions arising with regard to the physical difficulties of the law?—Yes, about the deductions for dirt.

3823. Can you tell us briefly what that difficulty was, as an illustration?—The difficulty was this, that the owners had decided not to make any deductions for dirt, but if a tub came up with a certain quantity of dirt in it they dismissed the man. The men complained that that was not within the meaning of the Truck Act, and that the owners were bound to deal with it by deducting the weight of that quantity of dirt in the tub.

3824. They preferred the Clauses?—Yes, they said the owners were bound to do that.

3825. Otherwise you have not had any difficulty in such matters?—That was the only instance. I think that came direct to the Home Office.

3826. I daresay it did, but it raises a very curious point, namely, whether you can compel the check-weighing Clauses to be brought in instead of dismissing the man. A man complained, and he said "I want the deductions made," and the owners said "No, if you send up dirt we will dismiss you." It is a curiously inverted condition of things; they could dis-

Digitized by Google

miss him, undoubtedly; he could hardly claim to have his pay reduced before being dismissed——

3827. *Mr. F. L. Davis.*) May I ask whether that man had been warned? He had probably been warned before. Was he in the habit of sending up dirt?—I think they had warned him the first time, and they dismissed him the second time.

3828. (*Mr. Cunynghame.*) I think it is thought generally that the Clauses are difficult to interpret. Now, with regard to lamps, I gather that in your district the larger proportion of lamps are practically satisfactory. Is that so or not?—That is so.

3829. That if, for instance, any system of lamp testing came into force, the number of lamps, even if they were thrown out of circulation at once, would not be, perhaps, more than a few per cent. Can you give us some sort of rough idea of the number of lamps which would be thrown out of use supposing we had immediately a rejection of all unsatisfactory lamps?—I could not say, but there would be a few, because I should reject all those that could be put together without their gauzes, for instance. But I could not possibly give you any idea as to how many there would be.

3830. Do you think there would not be as much as a tenth of the whole?—I should not think a tenth.

3831. You think it would be under 10 per cent.?—Yes, I think so. There are about 100,000 lamps in use in the district. I should not think it would be a tenth, or anything like it.

3832. So far as your district is concerned, the bringing in of a testing rule would not involve a very large expenditure?—You would test one of each type, I take it?

3833. Supposing you tested different types, and then only forbid the use of every lamp that did not conform to the type?—It would not mean a big cost.

3834. I think you were asked about shot-firing in dry and dusty mines between shifts?—Yes.

3835. How far is that practicable?—I think it is quite practicable so far as the roads and the ripping are concerned, but it is impracticable so far as the coal-getting is concerned.

3836. Have you many cases of double shift mines in your district?—We have some, but the greater number are single shifts.

3837. Is it more possible to do that shot-firing in the shifts in the case of the single shift mines than in the double shift mines?—I should think it is more possible in the single shift mines. I think it is possible in both.

3838. Even for the roads?—Yes, for the roads. You see, your double shift is from 6 to 10, so that they have from 10 to 6.

3839. But you think it is impracticable for bringing down the coal?—Yes; the men who get the coal must be present when those shots are fired.

3840. Then it would be a good thing, probably, so far as the roads are concerned, but impracticable so far as the coal is concerned?—It is quite impracticable for the coal, but it would be possible and practicable with the roads.

3841. With regard to rescue work, are you of opinion that it might be a good thing to test also the rescue apparatus, that is to say, to put them through a test with a view of throwing out types which were really bad?—Yes, I think it is very necessary. As the use of them extends we are sure to get others invented, and it would be necessary to test them.

3842. May I put it to you in this way? In the case of a good many small coalowners, say, plausible agents would come round recommending an appliance which was not a good and reliable one, and it would be rather a good thing to be able at once to have those pronounced impracticable?—It would be very necessary, because if it were not a good thing and it could not be relied upon, it would be an absolute death-trap.

3843. Then I suppose we could test these apparatuses so as to give them a thorough practical test in every way, and then certify them and put sealed patterns aside, so that when an owner or body of owners was ordering their apparatus they could specify that it should be up to sealed pattern?—Yes.

3844. It strikes me that that might be a good thing, and that it would be an advantage for the owners as well as an advantage for everybody else?—Yes, it could be done, too.

3845. (*Sir Lindsay Wood.*) You said that your assistants made a large number of inspections; I think you gave the number as 273?—Yes.

3846. The inspectors who do that work are all competent men; they must be good and efficient men?—Yes. One of them was appointed in 1885, when there were a certain number of what were then known as the "working-men inspectors" appointed. He has been in the district therefore for twenty years.

3847. I assume that you would not trust those men to make such a large number of inspections unless they were efficient men?—Yes, they are quite competent.

3848. Do you think that the duty of making out the statistics would be better done by having assistants rather than that the duty of making out the statistics be taken away from the inspectors?—I should not care for that work to be taken away from myself. I should like it to be in my hands always. I think there is so much information in those returns which is useful to an inspector that it would not do to take it away from him.

3849. The mere fact of having to analyse the statistics gives you the advantage of possessing information with regard to the state of the different collieries?—Quite so, especially as to ventilation. On the return it is necessary to show the number of men employed and the quantity of air circulating in the different pits.

3850. And also as to the condition of the mine with reference to fatal accidents?—Yes—we get that as a total.

3851. I mean, having those statistics passing through your hands gives you the information?—Yes. The accidents statistics could never be taken away from us; it would not be possible to deal with or to investigate them unless one had them through one's own hands.

3852. Have you found any difficulty arise with regard to the inspections made by the workmen in respect of the time at which the inspection has to be made—I mean, has any objection ever been made by the owners to the men going in?—My experience of that is confined to Durham. I do not think it has been done in Durham; I have never known of a case in which there has been any objection at all.

3853. In Durham it is the practice that they are always allowed to go and inspect the mine?—They do always inspect after an accident. I have never known of a case where they did not.

3854. You think that is beneficial?—Yes, I think so. I think it might be extended with advantage.

3855. You said you thought that Rule 38 might be altered from the wording as it now is so that there should be an examination by a practical miner who might inspect the mines?—Yes—a practical working miner.

3856. You thought "a competent person" might be better?—No; I say I should keep the present wording so as to be sure that a man was a competent man. If you made it read so that the mine could be inspected by any person elected by the workmen, they might elect a man who was not a miner.

3857. I understood you to say you would rather substitute the word "competent" for "practical working"?—You could hardly put "competent," because who would be the judge of it?

3858. (*Mr. Ratcliffe Ellis.*) You did say "competent," did you not?—I say that to be sure that he is a competent person you should keep that wording. I mean "competent" in the sense that he worked in a mine.

3859. (*Sir Lindsay Wood.*) "Competent working miner"?—Yes—that he was working in a mine.

3860. You mean not "competent miner" only, but "competent working miner"?—I should say "practical working miner"—keep the wording as it is. I did not mean that the man should be examined as to his fitness, so long as he was a working man. The point to be guarded against is that you might get somebody in who did not know anything about that mine or class of mine.

3861. You said you considered it better in all cases to prosecute rather than to fine even for trivial

Digitized by Google

Mr. W. Walker.

18 Oct. 1906.

breaches?—I think it has a better effect upon discipline, but I do not go so far as to say that I should do away with all fining, because there are cases of such a trivial nature probably that a fine might meet them. If that fining could be made known probably in the way which it has been suggested in other districts, in the form of an apology, it would do good in making it known to the other men; but my experience is that the men would not agree to it.

3862. But is it not generally known throughout the colliery when a man is fined for that reason?—Not to the extent that it would be known if he were prosecuted.

3863. I suppose in the first place a man who commits a breach is sent out of the colliery at once and does not continue his shift?—Yes, he should be sent out.

3864. That is a large publication, at all events, to the rest of the miners—they all know that he is sent out?—They may all know, but very often they do not.

3865. But they do actually get to know when a breach has occurred?—Some of them may not, or many of them would not. It is only known in the district that he is working in.

3866. Even in the case of a prosecution I do not suppose the men all read the newspapers?—No; but there is a chance of more men knowing.

3867. In many districts it is the practice to fine for trivial breaches, and to prosecute for all serious offences?—Yes. I think there are more fines than prosecutions at present. I am speaking now of Yorkshire.

3868. You think there ought to be some alteration in the inspection by the deputy as it is done at present. The working places have to be inspected within two hours before the men go in?—Three hours in my case.

3869. You think that the interval between that time and the end of the shift before the next inspection is to be made is sometimes too long?—It is practically seven or ten hours—it might be that length of time.

3870. But is it anything like that in practice?—I have heard of cases where a deputy has not gone into the place until one o'clock. The man working in it would leave that place probably at a quarter to two, so that the deputy cannot have much supervision over the man in that shift, he may have had too many places to get through, or something may have happened to prevent him getting there. If it had been a half an hour later he would not have been there during the shift at all.

3871. Then that would have been a breach?—That would have been a breach, but as he got there during the shift it was not a breach. It is not satisfactory.

3872. Is that not an extraordinary thing? Is it not very usual for them to get there some time about the middle of the shift?—I should not think so, because you see deputies reverse their order of visiting, but there is always somebody to be visited near the end of the shift. In some places they make two inspections during a shift, or even three, but that is not the general custom.

3873. You would rather have a limited district through which the deputies could go satisfactorily?—Yes, so that they could go twice.

3874. Or you would give them limited areas?—I should give them limited areas, so that they would have plenty of time to visit every man in the area twice during the shift, and so as to make it absolutely certain that every man was visited before the middle of the shift.

3875. You said that in your district the agents very often have certificates?—Yes, very often.

3876. Do not the agents very often become agents after having been managers?—Yes, often.

3877. They are promoted from that class of people?—Yes.

3878. Therefore they practically do hold managers' certificates?—I think the majority do.

3879. You said that in some cases they water the tubs in-bye before they come out?—Yes, in my experience. I do not know of many places in Yorkshire; they do it at one or two.

3880. Has that any effect as regards the deterioration of the coal?—I do not think so, because by the time that the coal gets to the top of the shaft it is dry again.

3881. It is not very excessive watering?—No. I should think about a quart of water to each tub.

3882. A sprinkling over it?—Yes. It is done automatically by a wheel passing over a lever, and opening a valve just over the top of the tub as it passes under; there is a projection in the rail, which the wheel presses down, and by that means a valve of a tank in the roof is opened.

3883. These tight tubs, as I may call them, I may take it are practically the ordinary tubs which are in use in Yorkshire and Durham, are they?—No; there are many wooden tubs that are made of green wood, and they get smashed and they are not repaired sufficiently. A tub comes out with big lumps of coal to fill up holes—that is the unsatisfactory tub—and probably there are spaces between the joints, of an inch and a half or an inch, often. What I suggest is that those joints should be made with iron between the boards, so that the dust could not possibly get out at the joints when the wood shrank, and that the bottom of the tub should be made of iron, or something like that, as they often are.

3884. You said you thought it might be advisable that an additional or second inquiry should be capable of being made on the application of anyone connected with a deceased workman?—If all parties were not satisfied. But my experience has been that they were satisfied hitherto.

3885. And that the inquiries were satisfactory?—Yes.

3886. But would not that right to a second inquiry have to be limited to some extent? They could not continually be opening up new inquiries?—I do not think the second inquiry would be necessary, from my experience. It has never been necessary up to now, but I should think where there was any dissatisfaction it would be better to have it.

3887. There would have to be some safeguard against the too frequent opening of a second court?—Yes, there would have to be conditions imposed.

3888. That is to say, before the second court could be held?—You would have to have some provision laid down. It would not do to have such an inquiry for every case that happened, because it would not be necessary.

3889. Or for every application?—It would depend upon the question whether the application was a just one or not.

3890. Is there not sufficient provision already made, under Section 45 of the Act, which gives the Secretary of State the power of directing a formal investigation into any explosion or accident, and of its causes and circumstances?—Well, you might even go further than that, probably. My experience is that that would be sufficient, because I have never come across a case yet in which the inquest has not been all that is necessary, and I have been concerned in one or two big accidents.

3891. There would be no object in altering the rule if there is no necessity?—I should say it is a question of whether everybody is satisfied that the inquiry was a proper inquiry.

3892. (*Mr. Smillie.*) You have stated that you have 375 collieries in your district. That is not 375 pits?—There are really more pits that that.

3893. May I take it that that is 375 mines?—Yes—mines.

3894. There may be two or three pits connected with one mine—two or three shafts, I mean?—Yes.

3895. And each of those two or three shafts may be worked in a different part of the mine?—Quite so, in some cases; but not often, except for ventilation purposes.

3896. You made 137 inspections yourself in 1905?—Yes.

3897. And 274 and 233 inspections was respectively made by your assistants—that is, 644 inspections altogether. Will you tell us what the nature of those inspections was? Were they thorough inspections of all the places and all the travelling roads, and every part of all the mines under your charge?—They could not possibly be, because, as I have told you, two men took six weeks to inspect one pit.

Digitized by Google

3898. I was coming to that. Now, will you tell me what you mean by "an inspection." You made 137 inspections yourself and your assistants made 274 and 233. What was the nature of those inspections?—Some of them would be thorough. You would go in by an intake road and see the face, and you would come out by the return and you would see a sample of what was occurring in that pit. In other inspections you might go for a special object, for some special case, to a special part of the pit.

3899. Every fatal accident called for an inspection of that particular place?—Yes, and that particular part of the district of the pit.

3900. But an inspection called for by a fatal accident would be sufficient if you went merely to the place or the part at which that accident took place and came back again. That would cover your responsibility under that for making an inspection there?—That would be an underground inspection, certainly.

3901. Therefore, I take it that 644 inspections were not really made of the mines under your charge—that is to say, all the mines were not thoroughly inspected?—Not all the mines. Some of the mines were visited eight or nine times in the year, but every mine was visited once, except nine.

3902. Supposing you went to a mine in which 1,000 men were employed, and you went from the pit bottom to a point at which an accident had occurred, and you made a thorough inspection of that part or that section of the mine, and came back to the bottom again, that is called an inspection?—That would be an inspection.

3903. But that is not really an inspection of that mine?—It is a sample of that mine, and with our present staff of inspectors you cannot have anything more.

3904. Is that a sample of what is understood to be "inspection"?—I do not say that every one of those inspections is of that description. Some of those mines have been inspected in every hole and corner.

3905. Could you give us any idea of what proportion of those 644 inspections were general inspections of all the working places at any of those mines?—I should not like to say from memory, but I should think quite half of them.

3906. Would it be possible for you yourself and two assistants, situated as you are at present, or supposing you had full clerical assistance, to thoroughly examine 365 collieries—I mean, to make a thorough examination of them once in a year. Would it be physically possible to do so?—It is not physically possible. I do not think it is intended.

3907. Never mind the intention. I should like to know whether it would be physically possible for you to make a thorough examination of those collieries so as to see every place, every main road, and every travelling road?—Every hole and corner?

3908. Every place where danger might arise?—That is a big question. It might or it might not be possible.

3909. Well, there are only 365 days in a year?—If you could tell me how many accidents there are going to be at one pit then I might tell you.

3910. But you have a knowledge of the extent of each colliery?—I have; but, for instance, everything must be regulated in this way: I may have twenty accidents in one colliery in one year, and I may have none in another.

3911. Quite so. The more explosions or fatal accidents there are the less possible would it be for you and your assistants to make the inspections which I suggest to you?—The more fatal accidents you have at one mine the more the time is taken up there, probably at the expense of the next one.

3912. You say that inspection under the Act by the workmen is in your opinion a good thing?—Very good.

3913. I think you say that such inspection sometimes helps the inspector of the district?—Yes.

3914. And it gives him information which he might not otherwise get?—That has been my experience.

3915. You say that in one case to your knowledge it took six weeks to make the inspection?—Yes.

3916. I take it that you know that mine thoroughly at which it took six weeks?—I have not been all over it, because I have only been in the district two years.

3917. You know the plans of it, and you know the extent of the workings?—Yes.

3918. Do you think there is any reason why two men should be engaged six weeks in making an inspection of that mine?—Probably if they had gone round the mine and visited each place once it would not have taken that time; but what happened in that particular case was that where the men saw anything which they found fault with, they revisited the place afterwards to see that it was put right, so that they visited some places twice. I daresay that mine could be inspected within a month but for that reason. The examination was a thorough one, and things were put right as they found them out, and they went and re-examined.

3919. If that mine is an average mine, and could be examined within a month by two men, it would take them 375 months to examine all the collieries in your district?—It is not an average mine; it is one of the largest mines.

3920. Would you say that it would take a week to inspect an average mine?—Do you mean an average mine in Yorkshire?

3921. Yes?—No.

3922. You would not say it would take a week to examine an average mine?—Well, it might, to see every hole and corner. I should not like to say, because we have so many small mines. What do you call an average mine?

3923. It is for you to say; I really do not know. But you say it would take a month to examine this mine, which is not an average mine. Then I ask you would it take a week to examine an average mine?—In the way in which those men examined that mine—the way they went through it, and probably the rate at which they went through it.

3924. I have been appointed by the workmen to examine a mine, and I took it when I was appointed that I was required to examine every working place, every travelling road, every haulage road, and every part where men at any time were called upon to go, because danger might arise there—the intake air-course and the outlet air-course—all the air-courses and travelling roads. Do you say that that is really what is meant by an examination?—That is what these men do, and they are very good and thorough examinations.

3925. Do you say that that is what a mines inspector is supposed to do when he makes an examination of a mine?—No, I say not; he is only to take a sample of it.

3926. You know that the inspectors appointed by the workmen are expected to make an examination of the mine?—The men who are appointed under Rule 38.

3927. The men who are appointed under Rule 38 are expected to make an examination of the mine?—Not in all cases, but I suppose they are when they are sent for that purpose.

3928. If they are appointed to make an examination of a certain place they are expected only to go there, but when they are appointed under Rule 38 they are empowered to make a thorough examination of all parts of the mine?—Yes.

3929. In order to find out whether there is danger in any part?—Yes.

3930. At the present time they must be under this Act practical working miners, and that has been held by the Court to mean men who are then working as miners?—Yes.

3931. Do you consider that that finding of the Court is really in keeping with the Act?—Yes; I agree with it.

3932. That is to say, that men who are appointed for that purpose must be men who are at the time of their appointment working at the face?—At some mine—not at that particular mine.

3933. No, but at some mine?—Yes.

3934. They must be working miners at the time?—They must be practical miners working at the time.

3935. Then it does not mean practical miners; it is a different thing from practical miners?—No, it does not mean a man who has worked.

3936. You think it is a good thing to confine it to men who are then working as miners?—Yes, I think so.

3937. You would have no objection, of course, to men who may be appointed by the men for that purpose

Digitized by Google

Mr. W. Walker.

18 Oct. 1906

holding a certificate of competency; they would be all the better for that, would they not?—I should not object.

3938. You are aware that at mines in every part of Great Britain now there may be from four to ten or fifteen men who are practical miners working at the face who hold certificates of competency at the present day?—Second-class certificates, yes.

3939. And firsts?—I do not know of any firsts, but many seconds.

3940. I take it from your examination-in-chief that you have rather an objection to the Government appointing any large number of additional mines inspectors who might be practical workmen?—I think it would be a mistake to appoint any men less qualified than the present mines inspectors are.

3941. Quite; and the qualification sufficient for a mines inspector at the present time is the holding of a first-class certificate?—Oh, it is more than that.

3942. Well, he passes an additional examination?—Yes, which is much more than the examination that he passes for a manager's certificate.

3943. You do not think it would be sufficient for a person in a lower grade of mines inspection, as it were, to hold a manager's first-class certificate?—Well, that, if you like, could be so, but still I think he ought to pass the qualifying inspectors' examination.

3944. Do you think that the ordinary inspectors appointed by the workmen have really done any good in the direction of making mining more safe than it is?—Which inspectors—the Government inspectors?

3945. No, the inspectors appointed by the workmen. You say you think it has been a good thing, and it has been a help to mine inspectors?—Yes, so far as that goes.

3946. That is in the direction of calling the attention of the chief inspector to dangers which exist?—Yes.

3947. If that has been so, with men who do not hold certificates, would it not be much more so if those men held certificates of competency; would they not be more likely to be efficient?—I do not quite agree. I think very often the men who make those practical inspections at a mine at which they are employed know of a particular danger before they go to inspect—somebody tells them about it before they go—and that would not happen with the men that you are speaking of.

3948. But would they have less knowledge by reason of holding certificates?—I do not object to their holding certificates at all.

3949. Other things being equal, if they are thoroughly competent men they would be more useful, you think, if they held first-class certificates?—I should say that a man with a certificate is a better man for the purpose than a man without.

3950. Other things being equal?—Yes.

3951. We are anxious to have a large staff of practical miners appointed under the chiefs, but we are quite prepared to say that they should hold qualifying certificates. Will you tell me your views on General Rule 39—it has not been mentioned up to the present, I think. That rule provides: "No person not now employed as a coal or ironstone getter shall be allowed to work alone as a coal or ironstone getter in the face of the workings unless he has had two years' experience of such work shall have been previously employed for two years in under the supervision of skilled workmen, or unless he or about the face of the workings of a mine." Is it your opinion that this rule prevents a person working at the coal face unless he has had two years' experience under an experienced workmen?—Yes, I think so.

3952. Supposing you were told that the Law Courts have interpreted this rule to mean that a person cannot work alone, but that two or three unskilled persons may work together?—Do you mean to say you could take two men out of a field and put them in a pit to work?

3953. Yes. Supposing the Law Courts have decided that that is correct, would you say that that rule should be altered?—I do say so. If you could take two agricultural labourers out of a field and put them in a pit to work together I should think that would be wrong.

3954. I put it to you that it has been held that two or more unskilled persons coming from an agricultural occupation, who had never seen a mine, might work together and fulfil the provisions of this rule?—I was not aware of that, but if it is so it needs altering.

3955. You would say that if that is the finding of the Law Courts on the meaning of the rule it must be altered?—Certainly.

3956. Do you think that this rule would be carried out if 10 unskilled persons were working in a section of a colliery under the supervision of a skilled person?—It would probably be carried out, but it is a question whether I should consider it was safe.

3957. Have you any foreign workmen or unskilled workmen employed in mines under your supervision?—Not to my knowledge. I would not say that there would not be an odd one or two, but not to any extent, to my knowledge.

3958. Not to any great extent?—No.

3959. Your attention has not been called to it?—No.

3960. Do you think that persons who have never been employed underground are likely to be a source of danger, if they are employed without limitation of any kind, to themselves and to their fellows?—Without supervision?

3961. Without supervision?—Certainly.

3962. Now, with regard to the inspection by officials, are you in favour of deputies (we should call them "firemen") holding a certificate of competency?—I do not think it is necessary. Many of them do.

3963. But the lives of the whole of the men in a section are in the hands of the deputy for the time being, and their lives may depend upon his examination?—Yes. It is an onerous position.

3964. It would be a dangerous thing for a person, say, who had no knowledge of firedamp, to be employed as a deputy in a fiery mine to run the places and make the reports?—I have said so in my evidence already.

3965. Do you think that to prevent such men being employed it would be a good thing to have a certificate of some kind that a person was competent?—Yes, but I think you might carry it too far. I do not think it would in every case be necessary, but in the majority of the larger mines it would be a good thing. Take the case of a small mine with 10 men in it. Even now that mine is exempted from requiring a manager, but it would not do to want a deputy with a certificate for that mine. It would be rather a hardship, because as a rule these mines are worked by a family—a father and his sons.

3966. Under the Coal Mines Act?—Yes.

3967. But are not the lives of seven men quite as valuable to those seven men as the lives of 100 men are to the 100?—I do not get an accident in those mines once in 10 years. Accidents take place there very seldom.

3968. What is your position with regard to the districts which the deputies attend to in your district? Do you think their districts are rather large?—Yes. I have said so.

3969. You have said so with regard to the second examination, and that it was almost impossible for for them to cover it?—No. I have said that in many cases I think the districts are too large.

3970. But I understood that you elaborated that by saying that it was impossible for them to finish their second examination?—Oh, I mean in any case.

3971. What is understood by the first examination by the deputy with locked safety-lamp in the morning? Is it only intended to run the faces; or is he intended to run all the roadways leading to and from the faces?—He should examine all the roadways to be travelled during the next shift unless the shift continues.

3972. All the roadways leading to and from the faces where the men are likely to pass and repass?—Yes.

3973. Do you think it is physically possible for the deputies in the mines under your charge to do that in three hours in the morning?—I think they do it, or else I should have something to say about it.

3974. You really think that they run all the roadways in addition to running the faces?—They have their marks in all the places, and I think they do examine most of the roads.

3975. But I think you have long-wall workings in your mines?—Yes.

Digitized by Google

3976. Is it not possible for them to go round the long-wall and to put their chalk mark on the face?—Of course, it may happen, but I think it does not. I say I think that rule is carried out at present—at least I hope so.

3977. Well, you know the extent of the work of some of the deputies, and you know whether or not it is physically possible for them in two hours to run that extent of working?—In three hours. With us it is made by the night-shift deputy.

3978. Generally, you think their districts are too large for them to fulfil their duties?—I think in many cases they are, and that they should be reduced so as to allow them to make two inspections during the shift.

3979. With regard to General Rule 1 as to adequate ventilation, do you think that the wording as it stands at present in the rule is sufficient, namely, "an adequate amount of ventilation." Could that be defined in some way or other so as to put the power into your hands, and the hands of other inspectors, to make it stronger?—I suggest that there should be no cap on the flame of a lamp.

3980. You mean explosive gas?—Yes. But do you mean to say that you would lay down a rule providing for a certain number of cubic feet per person employed?

3981. That is what I want you to tell me, whether you think there should be. I mean a cap on the flame of a lamp or an indication of fire-damp is not the only thing that we have to guard against?—I should have no objection to a rule stating that there should be a minimum quantity of air in the pit.

3982. Are you satisfied with the expression "an adequate amount of ventilation shall be constantly produced"?—I am, because I know what I read it as.

3983. You are satisfied with it?—Yes.

3984. Then as it is at present it is left with you and the manager to decide what is an adequate amount of ventilation?—Yes—or for a court.

3985. What happens if you differ from him?—Then it would be for a court to decide.

3986. Would it not be for an arbitrator to decide?—Yes, but I might prosecute him for having inadequate ventilation, and then it would be a question for the court.

3987. I think you stated that where a cap is shown on an adequate safety lamp in use in the colliery, the men should be withdrawn until that gas was cleared away?—Yes.

3988. You think in every case that would be a safe rule?—Yes. I think it is done now—except in the case of repairs.

3989. You mean in your own district?—Yes.

3990. You cannot speak as to what is done in other districts, of course?—No.

3991. In regard to shot-firing, you say that the coal-cutting machinery has caused more shot-firing to be done than was previously done in the Yorkshire district, and that there is more shot-firing now?—And in every other district, I think.

3992. In some it has caused less; in the thinner seams it has caused considerably less?—The general result is to have increased shot-firing.

3993. Are you of opinion that it should be permissible for a person to light two shots at the same time and then leave them?—In coal?

3994. In coal or other shot-firing?—I said in my evidence previously that in a stone drift it may be necessary or in sinking pits, but not in other places.

3995. In stone drifts or in sinking pits is it not possible that a person might light two shots and that one may go off and the other not, and his hearing an explosion of that kind might make him think that both shots had gone off and he might go back and get injured?—I think so.

3996. Has it happened?—Yes, it has happened.

3997. To your knowledge?—Yes.

3998. Is it necessary at any time in order to get the full effect of two shots in a stone drift or other class of working that they should both be lighted at the same time?—In large stone drifts and in sinking pits it is.

3999. That both should go off together?—That both should be lighted at the same time. Take a pit 20 feet in diameter, just where you are putting your sumping shot in; one shot would do no good at all; it would blow out.

4000. But you can blow out your sumping shot and then blow out your cut shots afterwards, can you not?—Well, that means that you have to send your man up and down every time.

4001. It is a question of time, really?—No, it is not the time; it is the danger. The man has to go down amongst stone that has been blown by one shot in order to put his attachment on for the next shot.

4002. Is that dangerous?—Very dangerous.

4003. Dangerous to go down after a shot that has fired?—Yes, quite so, because he has to make an examination of the sides and everything else. If you fire twenty shots in a pit, as you do sometimes with every man out, a man goes down and makes one examination for all the shots, whereas otherwise he would have to make twenty examinations.

4004. Then you think it does not increase the danger for men to light two shots at the same time?—No; it decreases it in some cases.

4005. Would you say that it decreased the danger for him to light eight shots at the same time?—In sinking a pit.

4006. I am very much astonished to hear that.

4007. (*Mr. F. L. Davis.*) All the men are cleared out?—The men are out the whole time.

4008. (*Mr. Smillie.*) Yes, but they do not know whether all the shots have fired or not?—I say it is very necessary, as it is done, that every detonator should be tested, that every battery should be tested, and that every cable should be tested. There are very few missed shots, as a matter of fact, and they fire eight to fifteen shots at a time.

4009. With regard to special rules, do you think that in the drawing up of special rules for safety or more efficient working the workmen should be in any way consulted other than the way in which they are at the present time. The present system is to hang up the rules, and if the workmen or any of the workmen have any objection to the rules they are to forward those objections to the inspector for the district. Do you not think it would assist matters very considerably in regard to getting more efficient Special Rules if the workmen and the employers were jointly consulted?—I think the workmen should have some say in the matter, and for that reason I have often got the owners to post rules, as required, so that the men should have a voice, rather than get the Secretary of State to propose them.

4010. Have you ever known the inspector of a district to call together the representatives of the workmen and the representatives of the employers so that they might jointly draw up Special Rules?—Yes, I think that has been done; but really the only time that any rules to a considerable extent were dealt with in that way was in the case of the Timbering Rules, and at that time—I do not know that it was done in the first instance—the men were consulted.

4011. I understand that that was not done?—Not until the men complained.

4012. I think it was not done even then.

(*Mr. Ratcliffe Ellis.*) Where was that—in Scotland?

(*Mr. Smillie.*) It is Scotland that I am speaking of. In Scotland no such thing was done, and I give that as one reason why they have not been as effective as they might have been.

(*Witness.*) I cannot tell you what happened in Yorkshire, because I was not there, and the inspector who was then in charge of the district, Mr. Wardell, is now dead.

4013. (*Mr. Smillie.*) In regard to rescue work, do you think it would be a good thing for the Government to undertake a part or the whole of the cost for equipping places for instruction in rescue work, and also in defraying the necessary expenditure?—I should not like to express an opinion upon that, because the matter is just in its infancy. I should like to see how far it goes under the conditions in which it has been commenced. The owners, I find, are willing to spend this money.

4014. Where anything is being done in Yorkshire and Lancashire it is being done at the cost of the

Digitized by Google

Mr. W. Walker.

8 Oct. 1906.

owners?—Yes, because the matter is just in its infancy. I think we had better see how it goes on.

4015. Do you object to a check-weigher who is appointed to attend to the weighing of the material acting upon information which he may get as to danger underground, and calling the attention of the Inspector to that danger? Do you think that is outside his duties?—Do you mean officially as a check-weigher?

4016. Officially as a check-weigher, or as an individual?—There is only one answer to that: if he sent a communication anonymously it would be attended to.

4017. Or if he sent it as a check-weigher?—I should not object to receiving it from him as a check-weigher. There is a question which arises, of course, as to whether he sends it in his official capacity or in his private capacity.

4018. I suppose you would act upon it if you felt that there was any justification for the complaint, whether he sent it as a check-weigher or anonymously?—I should investigate any complaint that was made, certainly, wherever it came from.

4019. Mr. Cunynghame has put some questions to you with regard to deductions, and I think I may take it from that that I may be allowed to put some questions with regard to the position of a check-weigher. I suppose there would be check-weighers at practically all the large mines?—Yes.

4020. At some of the smaller mines perhaps there is no occasion for them?—At most of the mines there are check-weighers.

4021. Have you had any complaints as to facilities not being granted to check-weighers to do their duties properly on the pit bank?—I have not received one from the pit bank at all.

4022. You have had no complaints?—No. I once had a complaint which arose in this way, that the manager insisted upon the check-weigher being the person who should look after the deductions for dirt, and the check-weigher said he could not do both, and that the men wanted to appoint two men. I think that was the only case I had.

4023. Supposing you had three pits at one colliery which might be stationed a mile from each other, and the material by which the men's wages were determined came up each of those pits and was confined to the men employed in that pit, do you think that under this latest Act of ours the men at all those three pits would require to be balloted before a check-weigher could be legally appointed for that pit? If the coal worked by all the men employed at that pit came up there, would you say that the men at No. 2 and No. 3 pit, who might be a mile away, and whose material the check-weigher would not weigh, were to be balloted upon the question of his appointment?—I should not like to say; I have never thought of it; I have never had any case like that, and I should like to think it over when I have the Act before me.

4024. There is another point which I am sorry to trouble you with, but which is very important to us. You see that a shelter is to be provided, and it is considered that there should be sufficient cubic feet for two persons. Do you think that means a little house, box, or office in which the weighing machine is placed, in which there would be room for two persons?—I should say the Act requires a definition of what is sufficient for two persons. The Factory Act lays down the cubical space for one person.

4025. Have you had any difficulty with regard to check-weighers having a covering to shield them and protect them from the weather—rain, wind, and snow?—I have never heard of a case. The owners have always done all they could to make the check-weigher comfortable.

4026. And their own weigher at the same time?—Their own weigher at the same time.

4027. Would you consider that a check-weigher had facilities for marking the weight of the material and keeping an account of it if he was standing at the open pithead with only the cover of the pithead above him, and the wind, rain, and dust blowing upon him?—But the Act says he must have shelter?

4028. Unfortunately it does not?—I refer to the new Act.

4029. This new Act does, but some of our employers say that the covering of the pithead frame is quite sufficient, and the Home Office says they are correct—that the covering of the pithead frame, even supposing it is 60 yards high, is a sufficient covering.

(*Mr. Cunynghame.*) I hope you will not allow it to be taken that the Home Office says it, because the Home Office has not said anything of the kind. They said it depended entirely upon the circumstances of the case.

4030. (*Mr. Ratcliffe Ellis:*) Perhaps I may deal with the last question as to check-weighers first. Will you refer to Section 12 of the Mines Act?—Yes.

4031. That section provides: "Where the amount of wages paid to any of the persons employed in a mine depends on the amount of mineral gotten by them, those persons shall be paid according to the actual weight gotten by them of the mineral contracted to be gotten, and the mineral gotten by them shall be truly weighed at a place as near to the pit mouth as is reasonably practicable." Am I right in this—that that provides, first of all, that all that comes up the pit, the mineral gotten, whether it is the mineral contracted to be gotten, or mineral which is not contracted to be gotten, is to be weighed? You notice that?—Yes, but have you not to read further?

4031*. I am going to read the proviso afterwards. First of all, all that comes out of the pit must be weighed?—Yes.

4032. That is to say, coal, dirt, stone, and everything else?—Yes.

4033. Secondly, it provides that the persons who are paid by weight must be paid for the actual quantity of the mineral contracted to be gotten which comes out of the pit?—Yes.

4033*. Then it goes on to provide: "Nothing in this section shall preclude the owner, agent, or manager of the mine from agreeing with the persons employed in the mine that deductions shall be made in respect of stones or substances other than the mineral contracted to be gotten, which shall be sent out of the mine with the mineral contracted to be gotten"—that is the first thing, that the owner and the men—the check-weigher—may agree as to the weight of the stone and substances other than the mineral contracted to be gotten which may be deducted from the total that is weighed at the top of the pit?—That is so.

4034. They may also agree to deductions "in respect of any tubs, baskets, or hutches being improperly filled in those cases where they are filled by the getter of the mineral or his drawer, or by the person immediately employed by him; such deductions being determined in such special mode as may be agreed upon between the owner, agent, or manager of the mine on the one hand and the persons employed in the mine on the other, or by some person appointed in that behalf by the owner, agent, or manager, or (if any check-weigher is stationed for this purpose as hereinafter mentioned) by such person and such check-weigher." Then it provides how any difference is to be decided?—Yes.

4035. What is provided there is that the deductions must be, not from the wages paid to the men, but from the total weight of the minerals gotten?—Quite so.

4036. That there must be deductions from weight: that is what is provided for there?—Yes.

4037. There is nothing there which compensates the owner for the loss he sustains by improper filling, or by bringing up dirt and stones which ought not to come up the pit. He simply deducts the actual weight of those from the total?—As a rule they agree on the method.

4038. First of all I want to see what the Act says, because it is said that this requires amending. As the Act stands he can only deduct the actual weight of what should not come up the pit from the total weight of what does come up the pit?—Quite so.

4038*. Do you know of any case in your district where that is carried out strictly in that way?—I think they agree; there is an agreement between the owners and the men as to the method of making these deductions.

4039. Yes, but I mean as to the quantum of the deduction?—No, I do not think it is ever done by deducting the weight.

4040. Is it simply the actual quantity that is deducted, or is there some additional quantity deducted as a penalty for an improper filling of the tub?—Yes, at times, I think, according to agreement.

Digitized by Google

4041. You think they agree among themselves that it should be so. That is not permissible under this section. You see, the agreement is to be simply as to the method by which the deduction should be made; it does not enlarge the amount of deductions which may be made?—But would the method cover any other way of doing it?

4042. You think the method ought to cover not merely the point as to how the deduction should be made, but as to how much deduction should be made?—So long as there is an agreement between the owners and the persons employed.

4042*. But supposing the owners and the persons employed do not agree, do you think it unreasonable that there should be some compensation made in some way or other to the owner for stones and other things that are sent out of the pit that he does not want?—I do not know. At the present time there is no doubt that a large quantity of stones come out which are not deducted from the weight.

4043. But I ask you whether you do not think it is only reasonable that the owner should be compensated for the loss that he sustains by a lot of this stuff coming up the pit, which imposes a loss upon him in two ways, first of all by having his machinery used to get that stuff up the pit, and secondly by having to spend a great deal of money on the pit bank when it comes up to clear the coal from the rubbish?—That may be, but it is quite a legal question, I should say.

4044. You would rather not venture an opinion on a legal question?—I have never had any difficulty in the matter; it has never cropped up.

4045. Do you know what the practice is at the collieries in your district with regard to that question?—I think there is an agreement between the owners and the men to make deductions in certain ways for the dirt.

4046. Is the agreement that they shall deduct a larger weight than the actual weight of the material which ought not to come up the pit?—The agreement would not amount to that in the aggregate. I should think there is more dirt sent out of the mines than they ever deduct.

4047. But does the agreement extend to deducting a greater weight?—I could not say absolutely with regard to Yorkshire.

4048. Can you say with regard to Durham?—There they have a system which they call "laid out." If a tub contains more than a certain quantity of dirt the man loses the tub altogether.

4049. Do you think that is a fair thing?—It has worked very well there. I have never had any objection.

4050. Do you think that is an unfair thing?—No, not there.

4051. If it is not unfair there it is not unfair in other districts?—I have never had any objection raised.

4052. Do you think this provision ought to be amended in order to make that legal?—Yes, I think there should be some amendment.

4052*. You think there ought to be an amendment to make the system in Durham, at all events, legal?—Yes.

4053. (*Sir Lindsay Wood.*) In Durham if you get more than so many pounds of dirt in a tub a man is fined so much for it—1s., 6d., 3d., and so on?—Yes, and if the amount is above a certain quantity he loses the value of the tub.

4054. (*Mr. Ratcliffe Ellis.*) Under this section the man is entitled to be paid for the actual weight of the coal that he sends up the pit. Then you are only entitled to deduct from the total weight of his tub (or number of tubs, as the arrangement may be) what is the weight of the mineral not contracted to be got?—Yes, but the owner has a right to agree with his workmen as to the deductions for dirt.

4055. No, not as to quantum, only as to the method?—Well, that is method as well.

4056. That is to say, the deductions of the actual quantity of dirt which comes up the pit. The method of making such deductions is to be determined—that is to say, you need not make the deduction in respect of each tub that comes up, but you may take it in the aggregate agreed. But there is nothing in this section which authorises you to deduct a larger quantity of dirt that actually comes up the pit?—Is that a legal decision?

4057. I think it is a legal decision, but at any rate it is the construction which lawyers have put upon this clause. If that is the case, you think that requires altering?—Yes. I agree that you ought to give the owners and the men the option, and make it legal for them to agree on the way in which it should be done.

4058. As to the quantity that should come off?—Yes, with regard to dealing with it either as to quantity or method.

4059. (*Mr. Smillie.*) To give it all away?—Yes, if they liked to agree.

4060. (*Mr. Ratcliffe Ellis.*) That the two parties together could agree. That is all I ask for, that they should be empowered to agree. They cannot under this clause?—But it has been the custom to agree, whether it is legal or illegal.

4061. So far as you know, it has been the custom everywhere to agree as to it?—Yes.

4062. And you think if that is not provided for in this section it ought to be provided for?—If it is not legal it ought to be made legal.

4063. The general custom ought to be legalised. You spoke about a qualification of inspectors for electricity, and I understood you to suggest that they should be qualified in the knowledge of electricity. Did you mean that to apply to a certificate of competency for a manager, or to the examination which an inspector has to undergo?—The examination which an inspector has to undergo.

4064. In the examination questions for managers' certificates there are usually some questions about electricity, are there not?—Yes, there are a few, but not many yet. There could be with advantage more such questions in that examination.

4065. As time goes on and people know more about the subject, perhaps there will be more?—Yes, I daresay.

4066. With reference to your inspection, in your view I understand you and your assistants were able, in 1905, to make such an inspection as you considered was necessary of the mines in your district?—No, I do not quite agree with that. I say that my district is rather too large for the staff that we at present have in it, owing to its extension.

4067. Yes, now it is; but I think you said that in 1905 you had made as much inspection as you thought necessary for safety?—Yes, I think I agree with that. It is quite impossible for a mines inspector to be responsible for the management of a mine.

4068. You recognise that the responsible management should be with the manager?—I quite agree.

4069. And excessive amount of inspection might be prejudicial to safety, might it not?—I do not quite follow.

4070. Might not an excessive amount of inspection be very embarrassing to the management?—Yes, it might.

4071. I am putting "an excessive amount"?—Yes, but what do you mean by "excessive"?—Do you mean once a week?

4072. Well, you would not want an inspector there every day?—Not for any length of time, but it might be necessary to send an inspector to a mine, say, every day for a week.

4073. Taking the better class of mines, not mines in which you find danger every hour unattended to, but the general class of mines, you do not think it necessary that there should be constant inspection day by day?—I have had cases in which it has been necessary, because when one receives a general sort of complaint that a certain mine is dangerous, say, in its roads, or for want of timbering, I would send a man then, or go myself, and see every road in the pit, and then it would take one there day after day. But, as a rule, I should say you do not require an inspector to be there every day for a week.

4074. I suppose the manager, you leaving with him the responsibility, must have to a certain extent a free hand, unembarrassed by all sorts of suggestions which might be made to him if there was an inspector constantly at his elbow?—The inspector does not want to do that. That is not my view at all. I think the

Digitized by Google

Mr. W Walker.

18 Oct. 1906.

inspector's duty should be to go and take a sample, say, of a pit, by visiting a certain portion of it, and from that he could pretty well tell whether there was a disposition to carry out the Act, or whether the rules were being carried out.

4075. Do you think that safety would be at all improved by having an enormous increase in the number of inspectors, so as to have constant inspection such as Mr. Smillie was suggesting?—I think you would remove the responsibility from the manager to the inspector.

4076. If you did that you would not conduce to safety?—I should say not. The proper person is the manager.

4077. Then I may take it that your view is that if you have an excessive amount of inspection you are in danger of removing the responsibility from the manager to the inspector?—Quite so.

4078. You do not think that would be desirable?—I do not.

4079. Not speaking for the moment about your district as it is now—it may have been large, and may have wanted more inspection—do you think that the inspection which you are able to give, with your assistants, say with the addition of another assistant, would be sufficient for the purposes of safety?—Taking that district as it is?

4080. Taking that district as it is with another assistant?—Well, I do not know. I might want two more, or else divide the district—something like that.

4081. But certainly in that district with two additional assistants you could do all that is necessary, you think?—Yes, I think with two other men I could.

4082. With reference to the question of working men inspectors; when they go down to make the inspections are they accompanied by any officials of the mine?—Yes. I think the rule provides for that.

4083. Well, they may go with them?—They must give notice, too, I think.

4084. Yes. In your experience are they generally men who are employed at the particular mine which they inspect?—I have known other cases, but as a rule they are men who are employed at the mine. There have been other cases.

4085. Of course, you recognise that the owner ought to have some control as to who should go down his mine?—Yes.

4086. And if a person goes down without the consent of the owner there ought to be some care taken that that person goes down for purposes which are legitimate, and that he does not use the information which he obtains for other purposes than purposes of safety?—But they have the right now, have they not?

4087. But do you recognise that?—The present Act gives them the right.

4088. Would you mind answering my question first?—It is that any information which a man gets at that colliery should not be used to the detriment of the owner.

4089. First of all, I put it to you, is it unreasonable that an owner should ask that a man who is allowed to go down his pit should confine his visit to seeing into matters with regard to safety?—No.

4090. And, secondly, that that man should not make any use of that inspection for any other purpose than purposes of safety?—I quite agree.

4091. As one of H.M. inspectors of mines you yourself are fenced round with restriction as to the use which you should make of any inspection that you make of a mine?—I agree.

4092. Do you agree with me that in extending the right of inspection of a mine to other persons who are not so fenced round with restrictions some care should be taken?—I quite agree.

4093. First of all, you agree that the right of inspection should be confined to a practical miner?—A practical working miner.

4094. And you would not extend it beyond that?—No, I think that is quite sufficient.

4095. Do you not think that it is really necessary to guard against the dangers which I have mentioned?—It would guard against it.

4096. Any extension beyond that might subject the owner to disadvantages?—Well, of course, you could have the same restrictions as you have in the case of a mine inspector.

4097. Who is to make them?—An Act of Parliament, I take it.

4098. But to whom are the persons to be responsible? You yourself are responsible to the Home Office?—Yes.

4099. To whom are these men to be responsible, and what would be the penalties?—That might be a difficulty, but it has not occurred in practice.

4100. A very great difficulty. Now, as to discipline, the object of punishment, whether it is by fine or prosecution, is to maintain the discipline?—Yes.

4101. You agree, I suppose, that where the offence is of a trivial nature a fine might be sufficient?—I said I would prefer that you should have a prosecution so far as discipline is concerned.

4102. But do you recognise the impossibility of that?—I should prefer that if it were possible; but I say that owing to the fact that with every prosecution you take away the officials from your mine, I would not do away with fines for trivial offences.

4103. You recognise that it is not reasonably practicable that all the cases should be brought before the magistrates, including those of a trivial character?—Well, some cases would be met with a caution.

4104. Supposing a case is brought before the magistrate, and it is dismissed, does that conduce to discipline, do you think?—I think it does good by publishing the fact that the offence might have occurred, even if the magistrates thought it had not.

4105. Do you not think it may do harm in regard to discipline when the charge is dismissed?—I do not.

4106. Would you agree that it is desirable where there is a fine inflicted that it should be advertised in the interests of discipline?—Yes, I quite agree, but where it has been tried in my own experience the men have objected very strongly.

4107. But it is in the interests of the men that the discipline should be maintained, is it not?—Yes, but before you can post an apology like that you have to have the man's permission, and he has to sign a document to say that he agrees.

4108. He might have that option, I suppose, or be brought before the magistrates?—Yes.

4109. Do you anticipate that there would be any serious objection on the part of the body of the men?—There would have been on the part of the men when it was tried—there would have been a strike.

4110. On what grounds?—That they objected to it.

4111. Even in the interests of discipline?—I do not know that the question of discipline arose. It was something new, and they objected to it.

4112. Do you think it would be in the interests of discipline that where a fine is inflicted for a trivial offence that should be advertised?—I do. I might say that in Yorkshire it is often so advertised, because, without the man's name being mentioned, all these fines go to the local hospitals, and they are published in the local newspapers.

4113. Where do those fines go in Yorkshire?—Most of them go to hospitals, and some are published in the newspapers, and the names of the collieries from which they come.

4114. Is fining extensive in Yorkshire?—I should say there are more fines than prosecutions, but I could not tell you the exact number.

4115. What is the method adopted in fining a man?—He signs an agreement each time.

4116. That is under the Truck Act?—I examine those when I go to a colliery.

4117. Perhaps you can produce one of such agreements?—No, I am afraid I have not one with me. I have here an agreement under the Truck Act for deductions. The man does sign an agreement consenting to be fined.

4118. There is a register of these fines kept in the office, which you inspect?—Yes.

4119. If you find any fine which you think is excessive it is quite competent for you to have the legality

Digitized by Google

of that fine discussed in the police-court?—Yes, quite.

4120. So that there is that safeguard against an unreasonable fine being inflicted?—Quite so.

4121. Do you know whether that fine is put on the pay-ticket of the men as a deduction?—I have a pay-ticket here in which the word "fine" is mentioned (*handed in*).

4122. At the bottom, showing the deduction made from his wages, it says there is a fine. So that the position is this: First of all, the man must agree to be fined, and he signs an agreement to that effect?—Yes.

4123. Then the amount must be reasonable?—Yes.

4124. And you would take care of that?—Yes.

4125. Because, even if the man agrees to a fine, and you see it afterwards and consider it unreasonable, you can test the question before the magistrates?—Quite so.

4126. Then also the fine is put on the man's pay-ticket the week after, and when he receives his money this deduction is made?—Yes, as in the instance I have given you.

4127. So that these are the safeguards against such fines being oppressive. Your only objection to that system, I understand, is that you think prosecutions, by giving greater publicity, would probably be a greater deterrent against breaches of the Act than these fines are?—Yes; that is my opinion.

4128. With reference to the agents in your district, apparently the agent is often a man who is qualified and holds a certificate?—Yes, in many cases; in the majority of cases.

4129. Do you invite coalowners to appoint agents if they do not appoint them?—I have had no cause to do that yet.

4130. There is always an agent appointed?—In most of the cases, but I should not like to say absolutely always for Yorkshire, because it is a question which I am taking up now. I have not had sufficient time to go into it, but, as a rule, there is an agent appointed, and he is a qualified man.

4131. What advantage do you consider there is in having an agent, whether he is qualified or not?—What advantage is there in having an agent at all?

4132. A qualified agent—that is to say, qualified as a practical miner, or a man who is acquainted with the working of collieries?—As a rule, the agent is a mining engineer of very large experience and large practice—with a much larger experience than even the manager can have. That all tends to safety.

4133. But the owners do not appoint an outside mining engineer as agent, do they?—There are many cases, of which I could give you instances, in which the agents are mining engineers of very good position and large experience.

5134. But the manager is the person that you look upon as the person responsible for managing the mine?—Yes; but I think if the agent takes some leading part in the management of the mine he should also be responsible.

4135. So he is?—But there have been cases where he was not.

4136. That may be. There may have been cases where an agent has been brought before the magistrates, and it has been decided that he was not liable under the Act?—That is what I mean.

4137. But that is no reason why the agent should be a qualified mining engineer; the Act provides that if the agent is guilty in any way he is responsible?—I beg your pardon. Are you speaking about the desirability of having a qualified agent?

4138. Yes?—I think it is very much to be desired, because you then have a man with a wider experience than the manager has in many cases.

4139. Is it your view that what is meant by "agent" in the Mines Act is some man of a wider experience than the manager?—You ask me whether I consider it is better for the agent to be a mining engineer or not?

4140. Yes?—I say by all means have the mining engineer, for that reason.

4141. You would not alter the law so as to make it that no man should be appointed agent who was not a qualified mining engineer?—No. I only say that it is desirable he should be. It is a question rather for the Commission.

4142. With regard to the watering in mines that you spoke of, you know the provisions in the Mines Act and in the Explosives Order at present?—Yes.

4143. Do you think those provisions want extending?—So far as the Explosives Order is concerned.

4144. The Act of Parliament provides as to shot-firing in dry and dusty mines that precautions should be taken about watering?—Yes.

4145. Then the Explosives Order provides that shot-firing shall not be allowed except under certain conditions which are prescribed?—Yes.

4146. Do you wish to alter that in any way?—With regard to the watering, I should like to have some means provided of dealing with the dust—different to this altogether.

4147. Beyond that?—Beyond that.

4148. Have you anything in your mind as an indication of what you would suggest?—I have not drawn up any rules. I have said in my evidence what I think should be done. It needs to be very much more than is done at present.

4149. In the way of watering?—Yes; or dealing with the dust.

4150. With reference to General Rule 1, on ventilation, that rule provides that there should be an adequate amount of ventilation. General Rule 7 provides that the men shall be brought out of the pit in cases of danger?—Yes, in cases of danger.

4151. Do you mean to apply your test to both of those cases, namely, where there is a cap in a lamp, or would you leave General Rule 1 as it is:—"An adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases to such an extent that the working-places of the shafts, levels, stables, and workings of the mine, and the travelling roads to and from those working-places, shall be in a fit state for working and passing therein." That is very large?—You see the difficulty there would be in the last words which you have just read. I should say the places would not be safe to be working or passing therein.

4152. But would you leave that to the magistrates, and would you provide in General Rule 7 that the men should be withdrawn where there is a cap such as you have suggested?—Rule 7 might meet it in making it illegal to have the men working in any place with that condition of ventilation.

4153. But would it meet your view if Rule 7 were altered? You see that, according to that rule, the men are to be withdrawn where it is found that "by reason of inflammable gases prevailing in the mine or that part thereof, or of any cause whatever, the mine or that part is dangerous." Do you think it would be sufficient if you defined a little more clearly what should constitute danger?—Well, you would have to alter the first rule.

4154. Why?—Because it says "to such an extent that the working-places of the shafts, levels, stables, and workings of the mines, and the travelling roads to and from those working-places, shall be in a fit state for working and passing therein." Then I should consider that they were not in a fit state to pass therein.

4155. But do you not see that in one case it is a question to be considered whether or not there was an offence against General Rule 1, and the other question to be considered is whether the men should be brought out when a certain condition which you think dangerous exists?—Quite so; but it would not meet what I mean if you did not alter Rule 1 as well, because I do not consider it is a safe condition to be working under. General Rule 1 says, "shall be in a fit state for working and passing therein"; well, I do not consider it is safe with a cap on the lamp.

4156. Would you alter Rule 1 in cases where there is no gas at all—because you see there might be cases where there is not an adequate amount of ventilation, instead of it being a case of gas existing?—Yes, that is quite likely.

4157. How would you deal with those cases if your test is a cap in the lamp?—It is one of the tests; it is not the only test.

Digitized by Google

Mr. W. Walker.

18 Oct. 1906.

4158. You have other tests besides that?—Yes, naturally. If I were going to a place now, and I found there was not sufficient air in that place, they would not be providing an adequate amount of ventilation. That is another test, in my opinion.

4159. Then would you make any additional test in cases where there was no gas?—Yes. My opinion would be that there was not sufficient air in the pit.

4160. But you can give that opinion now?—I said, in reply to a question put to me in the earlier part of my examination, that I have no objection to the minimum quantity of air per person employed being stated.

4161. Do you think it necessary to add that as to the minimum amount of air?—It would do no harm, because I think any inspector now would decide in his own mind as to whether a place was properly ventilated or not.

4162. Yes, he would give his view, and then when they got before the magistrate the view of the mining engineer or manager would be taken also, and the magistrate would decide. The question is how far it is necessary to make certain standards of ventilation?—It would be difficult, because I take it that the minimum that would be stated would probably even be lower than one would expect to find in a pit, or, rather, not that one would expect to find, but than one does find.

4163. Do you think that there is a considerable difficulty in making these alterations to cover every case?—Yes; but it covers the very case, probably, that you want to provide for; that is to say, the majority of mines in this country would come up to the minimum that might be stated in any rule.

4164. However, you appreciate that there is a considerable difficulty in making such an alteration as would deal with every case?—I do not think there would be any difficulty, because in most of the cases the ventilation would be sufficient.

4165. With reference to lamps, you said that where the lamps were once introduced they should never be taken out again?—Yes, that is what I think.

4166. Supposing there is a case in which there is a very slight appearance of gas, and the lamps are introduced in a colliery where there has never been gas seen before probably, do you mean to say that after a reasonable interval, if there is no gas seen, the lamps should be continued?—I think they should be.

4167. Sir Lindsay Wood has asked you some questions upon the subject of inquiries after accidents. I think you said you would not go so far as to say that anybody should be entitled to demand an inquiry after an accident, but that there should be some limit put upon that power?—Yes, there ought to be some restrictions. It should not be done without good grounds.

4168. But who should decide the ground?—If it could be done by order of the court it would be satisfactory.

4169. As it is now, the inquiry would be under the direction of the Home Office?—Yes.

4170. But ought it not to be that the Home Office should be entitled to decide whether the grounds were sufficient or not?—What I think is so absolutely necessary in all these inquiries is that everybody should be satisfied.

4171. I am afraid if you are going to try and satisfy everybody you will have a difficult task?—Well, an inquiry is an important matter. But I say still that my experience is that the coroners' inquests have been sufficient.

4172. Your experience is that those inquests have been sufficient to get out all the facts?—In all cases I have known.

4173. The question of punishment is a matter outside the coroner altogether?—Quite so.

4174. You can deal with that matter afterwards when you get out all the facts?—Yes.

4175. But with reference to a second inquiry, that is a matter which involves considerable expense?—I suppose any inquiry would.

4176. As it stands at the present time, it is left to the Home Office to decide?—But take the case of the Boiler Explosions Act. You have your coroners' inquests, and you have also a court of inquiry.

4177. Yes, but that is directed by the Board of Trade—there must be an inquiry there?—But that is even worse than what I am suggesting, because they have an inquiry in every case under that Act.

4178. I want to see what your suggestion is. Your suggestion, as I understand, is that if there was a reasonable request for an inquiry it ought to be complied with?—Yes.

4179. But who is to decide whether it is reasonable or not?—Well, take it to a higher court if you like.

4180. Why not go to the Home Office?—I would not say why it should not be done by the Home Office, but there is evidently feeling on this question, and it occurs to me that that would be one way of avoiding it.

4181. Do you think that it is desirable to endeavour to meet every grievance if there is not a real grievance?—I think it is absolutely necessary in the case of an inquiry that everyone should be satisfied that justice is being done.

4182. Yes, but this is the point: you quite agree that it would not do for an inquiry to be made compulsory because somebody says, "I am not satisfied with the facts as they came out at the coroner's inquest"?—I do not know that I should object in the case of very big accidents..

4183. But big accidents or little, somebody must decide whether it is reasonable that an inquiry should take place or not. You suggested a Judge of the High Court?—Yes.

4184. Why alter the existing state of things. Section 45 provides that where it appears to the Secretary of State that an inquiry is expedient, he may direct such an inquiry to be held. Why confuse the Mines Act by introducing a Judge of the High Court to decide a question of this sort?—It would be nothing new. You have other cases in which a Judge of the High Court has to deal with the matter.

4185. Can you give me a case where a Judge of the High Court deals with such a matter as this?—It would come before a court upon the question such as the removal of a check-weigher.

4186. But that is a question of law, and this is not a question of law at all; it is a question of discretion. The Home Office is the authority which is placed in charge of mines?—Yes.

4187. The Home Office would have to send a man down to make the inquiry, and the inquiry would have to be under the direction of the Home Office. Now do you suggest that any person who thought an inquiry was necessary should be able to go to a Judge and ask the Judge to direct the Home Office to make an inquiry?—I have not thought that out very carefully, but my opinion is that it is very necessary that everybody should have confidence in these inquiries.

4188. That is a different question altogether. But I want to deal, first of all, with the question as to the conditions and circumstances under which an inquiry should be held. Do you agree with me that it is really for the Home Secretary to decide, and that he is the only authority that can decide?—At present, yes.

4189. Do you want to alter that?—Only for that purpose.

4190. Well, for any purpose. Do you think there is a sufficient objection to the present arrangement as to require some alteration in the way you suggest?—I say that is only a suggestion which I have made.

4191. Do you think it is better, as it is at the present time, that the Home Secretary should decide under all circumstances whether there should be an inquiry or not?—I would not like to give a decided answer as to whether it is better or not.

4192. Then we will pass from that question, and, supposing the inquiry to be held, have you any suggestions to make as to the method of the inquiry?—I have not. I have not considered the details at all.

4193. That is satisfactorily provided for in the Act of Parliament?—Under the 1896 Act now you have the workmen represented at these inquiries.

4194. There is no objection to that at all. With reference to the Special Rules, do you think there should be no right to go to arbitration for a rule?—I say I do not believe in the present method. I think that some system, such as there is under the Factories Act, would be better.

4195. Are you acquainted with the Factories Act, and the system under that Act?—I know what they do; they hold an inquiry.

Digitized by Google

4195. But I want to point out this difference. Do you know that under the Factory Acts it is the duty of the Home Secretary to make rules for dangerous trades, and do you know that under the Mines Act it is the duty of the colliery proprietor to suggest rules?—Yes, but the Secretary of State also has power to propose the rules.

4197. But you know of that difference, that in the one case under the Factory Acts the rules have to be made by the Home Office, and in the other case they have to be made by the owner, agent, or manager of the mine?—Yes.

4198. Does that difference affect your view as to the procedure in the establishment of the rules?—I think it would be better.

4199. Does it affect your view that the factory method should be adopted?—It does not. I think that method is better than the one which we have now.

4200. What is your objection to the present method?—It is cumbersome, and in the event of the parties not agreeing you get an arbitration which is long, and sometimes takes years, and it is costly.

4201. Do you know the regulations which were established for sidings under the Factory Act recently?—I have followed that inquiry.

4202-3. Do you know how long it took?—I saw it discussed in some of the previous evidence, but it did not take anything like so long as the South Wales Arbitration.

4204. Do you think it is unreasonable that where a rule is going to be proposed for the management of a mine, in which case the owner, agent, and manager are responsible for the discipline and management of the mine, that rule should be imposed upon them without their having the right to go to arbitration to determine whether it is a good or bad rule?—He has the right of putting his views before a court of inquiry.

4205. Yes, but you know that after the court of inquiry has inquired into the matter the Home Office can please themselves whether they adopt the report or not?—Yes, but that could be met with any legislation so far as coal mines go.

4206. But you say that you think the Factory Act legislation with reference to rules might apply, and I do not agree with you; therefore I want to see how near we can get to each other. I put it to you whether you think, under the conditions I have mentioned, a rule should be established——?—Excuse me, I do not say that in every detail absolutely the Factory Acts should apply.

4207. No, I do not think you did say that, but let us get at this main point. Do you disagree with the principle that where a rule is proposed to be established which is to govern the agent, owner, manager, and men in the colliery, and for which the owner, agent, and manager are to be responsible, that it should not be imposed upon a man without his having the right to go to arbitration?—I do, if he has the right of going to the court of inquiry.

4208. But you say that the court of inquiry should decide whether the rule is to be imposed upon him or not?—Yes.

4209. That is not the Factory Act legislation?—But that would be better than the system which we have now.

4210. Then we agree thus far, that whether it is factory legislation or arbitration, he ought to have a right to submit his views to the court of inquiry to decide whether the Home Office is right or he is right?—Quite so.

4211. You agree with that?—Yes—and so should the men in the same way have the right.

4212. I cannot deal with two things at the same time, but I want to see whether you agree with me, because this is the difference in the two cases: in the Factory Act case the Home Office make the rules; they can submit them, if they choose, to inquiry, but they are not bound to accept them; under the mining law the rules are submitted to an arbitration, and the arbitrator must decide, and then if he decides against the Home Office the rule is not established. Now you agree with me that in the establishment of rules for mines, at any rate, either by arbitration or some independent inquiry, the owner should be entitled to submit his case and to have the opinion of an independent court of inquiry upon it, and if that opinion is against the Home Office, then, of course, the rule should not be established. You agree with me in principle as to that?—Yes, but I should like to explain—it might result in some modification of the rule—not necessarily that it should be established or not be established.

4213. I agree; it is to refer it to an arbitrator who shall decide?—To some court of inquiry.

4214. To some outside tribunal?—Yes.

4215. Your objection to an arbitration is that it is cumbrous and takes a long time?—Yes.

4216. Have you any other method to suggest?—I have not.

4217. Do you think that something of this sort would meet it: supposing that the Home Office desires to formulate a rule, that they should propose a rule, and their proposal might be applicable either to a colliery in the district or to the whole of the collieries in the district, or to some of them; then that any objection could be made to that rule by any person interested in it, and that if the Home Office and the objector or objectors did not agree, then it should be referred to some single arbitrator to be appointed between them by agreement, or, failing appointment, that a Judge of the High Court should be invited to appoint an arbitrator; would that be less cumbrous than the present method?—Well, it is practically the same method.

4218. No, it is quite different. The present method is this, that if a rule is proposed it must be for a colliery, and could not be for a district, and that each colliery could go to arbitration about it?—Yes, I understand; but the procedure is practically the same.

4219. No, the procedure is this at present, that the Home Office, through the inspector, appoints one arbitrator, and the coal-owner appoints another, and those two appoint an umpire. But I am putting to you whether this would meet your views, that it would be less cumbrous if the Home Office suggested an arbitrator, and if he was not objected to of course he would be accepted, and if he was objected to, then, following the Arbitrations Act, that a Judge of the High Court should be invited to appoint an arbitrator?—Assisted by assessors.

4220. No, I do not think he would want assessors?—But in all these other courts they have them.

4221. So far as the details are concerned, I look upon that as unimportant for the present; but in principle do you think that that method would meet your views?—Yes, I dare say it would.

4222. Something of that sort?—Yes.

4223. But you would not approve of a system like the system under the Factory Act, where the Home Office, uncontrolled by any arbitrator or outside tribunal, would be entitled to impose a rule on a coal owner which he did not want?—At present, under the Factory Act, as I understand it, the Home Office propose a rule, but if you object you can have it inquired into.

4224. You can go to the inquirer whom they appoint, and he may report, but the Home Office can accept his report or not, as they think fit, and they can make their rules, and if those rules are laid on the table of the Houses of Parliament for a certain number of days and not objected to, they become operative, notwithstanding that the person to whom the matter is referred may report upon it quite differently?—You mean they might take it up or not take it up, but then you have not that rule imposed upon you.

4225. Yes, you have, indeed, if the Home Office choose to make it?—Has it not been altered?

4226. No, it has not been. The point I wish to make (and I think you will agree with me upon it) is this: that considering the peculiarities of mining as distinguished from cotton-spinning and textile fabrics, inasmuch as the owner, agent, or manager is responsible for the mine, a rule intended to secure the discipline of the mine should not be put upon him without his having the opportunity of taking an opinion outside the Home Office as to whether it is a good rule or a bad rule?—I think that every party affected should have an opportunity of stating his view.

4227. (*Mr. Smillie.*) The workmen as well as the owners?—Yes.

(*Mr. Ratcliffe Ellis.*) The workmen will look after themselves; they are quite able to do that. But the-

Digitized by Google

Mr. W. Walker.

18 Oct. 1906.

coal-owner is the person who is responsible, and he is the person who may have to go to prison.

(*Mr. Smillie.*) But he is not the man to get killed.

4228. (*Mr. Ratcliffe Ellis.*) Then you think the coal-owner ought not to have a rule imposed upon him for the discipline of his mine by the Home Office without his having the power to take the opinion of an outsider as to whether it is a good or a bad one?—I go as far as to say that all persons concerned should have the right to take an opinion.

4229. The method by which that should be effected is a matter to be agreed. But you agree with principle?—Yes.

4230. Do you say that with regard to the section of the Act requiring plans of abandoned mines to be deposited, any mine which had not been worked for 12 months should be treated as an abandoned mine?—I do. I consider it is very important.

4231. Without considering the question whether it is going to be reopened or not?—It does not create any hardship at all from our point of view. The making of the plan and depositing it is a very small thing, considering the great danger that is run if it is not done.

4232. It is not a small thing. The fact being that these plans are deposited at the Home Office after a mine is abandoned, you do not want working plans deposited at the Home Office?—There are conditions attached to that to prevent everybody using or even seeing them.

4233. But I should not think that a manager would like to treat every mine as an abandoned mine because they have discontinued working a seam in it for twelve months?—You know the danger there is by reason of want of plans of abandoned mines.

4234. I do not see that the danger is so pressing as to justify what I should call a drastic innovation of that sort?—Well, I do not know. I have had experience of two big inundations from that cause.

4235. Supposing you have a number of seams in lease, and by reason of bad trade, as is very commonly the case, you say, "I cannot go on with this mine"?—Of course, by "abandoned" I meant where there is no work at all going on, and that the mine is not even visited, but the place shut down. I do not call a mine "abandoned" where you have a man going in now and again.

4236. I understood that if there was no working going on for twelve months it was to be treated as an abandoned seam?—That is to say, supposing a colliery is absolutely shut down, and the place is in ruins, but that there is some plant in it or some rails or tubs.

4237. That is a different thing altogether; that might be an abandoned seam if the lease had expired?—No, the lease has not expired. The owner of the mine which I have in my mind says: "The mine is not abandoned, and I have some plant in it." If you went to any court to get it declared to be an abandoned mine I should think you would lose.

4238. Is it not a question of fact whether it is an abandoned mine or not?—I think under the present Act any court would decide that it was not abandoned; therefore the Act needs amending in order to cover a case of that kind.

4239. You cannot amend the Act to cover every case so that you will always be successful in the courts?—It is not a case of being successful in the court; it is a question of having 100 men drowned or not—it is a question of safety.

4240. (*Sir Lindsay Wood.*) Do you mean for the adjoining mine?—Yes, a mine working up to it. You have no power to produce his plans, and you do not know what those workings are.

4241. But surely a man would be trespassing in that case?—Yes, but you probably do not know that until the accident happens.

4242. But if an accident happens it would be the same thing?—You would have his plans then. I have not his plans now.

4243. If it is not abandoned you can see his plans, and if it is abandoned they are at the Home Office?—Yes, I daresay I could copy them; but I say that it is not the right method, and that they should be at the Home Office, because under the arrangements which took place these plans were probably destroyed. I think it a very important point.

4244. (*Mr. F. L. Davis.*) There is only one point I should like to put to you upon this. I did not understand you to say that if the owner of a mine abandoned working a seam for twelve months he should deposit his plans, but your suggestion is if he abandoned the whole of the working in a mine?—Yes.

4245. (*Chairman.*) With regard to the question of having the paramount authority of the Secretary of State, apparently Mr. Ellis's position is this, that he would try to persuade you that where the men want for any reason a second inquiry into the causes of an accident, then the Secretary of State ought to be paramount, and ought to have an absolute veto over the granting of a second inquiry, and that you are not to have arbitration or to go to a judge of the High Court, and that the men would have no means at all of redress if the Home Secretary refused to grant their inquiry, as they thought, wrongfully. But, on the other hand, when it comes to a question where the owners are concerned of Special Rules, in that case Mr. Ellis suggests that it would be extremely wrong that the Home Secretary should be paramount, but that you ought to have some superior authority who could decide between the Home Secretary and the owners. Well, I am not at all sure myself that if it is wrong in one case it is not wrong in the other that the Home Secretary should decide?—Quite so.

4246. (*Mr. Ratcliffe Ellis.*) Might I put this, that in the latter case it is a question of a rule which is to be imposed upon me for the working of my mine, with regard to the working of which I am responsible myself, and that I ought to be allowed as free a hand as I can have in the working of it. I say that if the Home Secretary is going to impose upon me a rule for the working of my mine, for the working of which I am responsible, I ought to have a voice in saying what that rule should be, and that it would not be fair that that rule should be imposed upon me by the Home Secretary without my having an opportunity, if I think fit, of going to an outside authority and having the question decided whether it is a rule which is necessary for safety or not necessary for safety. With reference to the other case, that is not a matter that the owner is responsible for. I am responsible with regard to a rule, and if I do not carry it out, although it might be a bad rule, I should be summoned and fined for it, and I say that before you impose a rule upon me like that you ought to give me the opportunity of saying whether it is a good or bad one if I do not agree with you.

(*Chairman.*) There may be room for a good deal of argument in the matter. It does not seem to me to be quite clear. I must confess that there would seem to be some argument against making the Secretary of State paramount in one case and not in the other. With regard of the Factory Act, I should not like to argue with you the differences between the conduct of a factory and the conduct of a mine, but at the same time the owner of a factory is under obligations to the State with regard to working his factory. I am not expressing any opinion as to the merits of the specific cases argued by Mr. Ellis, but it does occur to me that when it is once suggested that the authority of the Secretary of State should not be paramount, if that suggestion is acted upon, as it is in the matter of special rules, at all events there is some foundation for the suggestion that the Secretary of State's authority should not be made paramount in other cases. That is as far as I go.

Digitized by Google

NINTH DAY.

Wednesday, 31st October, 1906.

PRESENT:

Lord MONKSWELL (*Chairman*).
WM. ABRAHAM, Esq., M.P. (Rhondda).
H. H. S. CUNYNGHAME, Esq., C.B.
F. L. DAVIS, Esq.
ENOCH EDWARDS, Esq., M.P.
THOMAS RATCLIFFE ELLIS, Esq.
JOHN SCOTT HALDANE, Esq., F.R.S.
ROBERT SMILLIE, Esq.
S. W. HARRIS, Esq. (*Secretary*).

Mr. JOSEPH THOMAS ROBSON called and examined.

Mr. J. T. Robson.

31 Oct. 1906

4247. (*Chairman.*) I believe you were lately inspector of No. 11 District, the Swansea District?—That is so.

4248. You have now retired?—Yes, on the 21st July.

4249. How long an experience have you had in the Swansea District?—About 19½ years. During the first fifteen years I had the whole of South Wales, and it was called the South Wales District. Then in 1901 the South Wales District was divided, and made into the Cardiff District and the Swansea District. Then I remained at Swansea and took charge of the Swansea District, and one of my assistants was promoted and put in charge of the Cardiff District.

4250. Then for fifteen years you had Districts 10 and 11 on the map?—Yes, for about fifteen years. That was as Chief Inspector; before that I was for fourteen years in Scotland as an Assistant Inspector, so that I have been fully thirty-three years altogether an Inspector of Mines.

4251-2. The Commission desire to hear your views with regard to the Swansea District rather than the views of the present inspector, because the present inspector has been there for such a short time, and you, of course, have had a longer experience there. Originally, I suppose, when you had Districts 10 and 11 to look after, you found that the district was too large?—It became very unwieldy. I had four assistants, and really giving attention to their reports, and one thing and another, prevented my getting out very much, and it was too much altogether.

4253. Then, in point of fact, you have had, for those fifteen years, to look after the whole of what are now two districts?—That is so. Of course, there has been a little extension since, during the four years which have elapsed; both districts have grown a little, especially the Cardiff district.

4254. With regard to the Swansea District, do you consider that the district is too large to be properly looked after by yourself and two assistants, or, we will say, by an inspector and two assistants?—No, I think that is reasonable now. I think there can be enough inspection made by the three.

4255. The Swansea District seems to be a small district, with regard to the number of men employed?—That is so, but it is a very scattered district. Many of the mines are very inaccessible, and you cannot very well go by the number of mines, or the number of men employed, in gauging the amount of work done.

4256. Some of the mines, I understand, are very dangerous mines?—Some are very dangerous.

4257. Do you consider that during the 4½ years in which you have had only the Swansea District to look after, you have been able to make as many inspections and as full inspections as you think were fairly desirable?—I think so.

4258. You have been able to inspect during the year every separate mine of the 255 mines in your district?—Practically every mine was inspected at least once, but that inspection did not necessarily include the whole mine.

4259. But you inspected every mine so far as you considered it reasonably necessary to do so, or, rather, I see you apparently excepted five mines out of the 255?—Yes. They were all inspected, with very few exceptions; probably they would be very small mines where nothing had happened for several years. Of course many of the mines are inspected frequently.

4260. With regard to the clerical work relating to the mines, did you find that the clerical work was too much for you; would you have liked to have been relieved of any clerical work, or to have had more assistance?—There is, of course, a large amount of clerical work, and I did most of it myself. I thought it was better to do it myself than to take the assisants from their duties.

4261. With regard to the £25 which you are allowed for assistance, did you consider that was as much as you required?—I daresay it was reasonable. I never objected to it. I mean I never made any application for more.

4262. That £25 worth of assistance enabled you to do fairly comfortably the whole of the clerical work that you felt called upon to do?—Yes. For several years I employed a young man to come in at night for about five nights in the week, and I paid him the money. Latterly I found that I could dispense with that, and I got one of my own daughters to do it. She was very smart, and able to do it just as well. I did that for several years. I did not like the idea of bringing a young man in, I may say. He was a clerk in the town, and I was afraid that he might get access to papers or documents which it was not desirable that he should see and I thought it better to keep it inside the family.

4263. Your view is that the greater part of the clerical work and correspondence of an Inspector of Mines ought to be done by himself personally?—Yes, I think it is better in every respect.

4264. With regard to statistics which you have to get out for your reports, would you desire that those statistics should be compiled by Inspectors of Mines, as is done at present, or do you think it would be better that the inspectors should send up notes to the Home Office, and that the Home Office should, from those notes, compile the statistics?—I prefer the present method. I think it is very little relief sending them up, because you have to revise them, and they have to be sent back to you. I find there is very little advantage or saving in the Home Office professing to collect the Quarry Returns. They really come to the inspector, and he has to go through every one of them. The saving is practically nil—the mere posting of 300 or 400 documents is nothing.

4265. Then you feel that if the Home Office were to compile these statistics, very little work would be taken off the hands of the inspector, and it would not be so very satisfactory to him?—It certainly would not be so satisfactorily done, and to have the work satisfactorily done I think the inspector is the proper man to do it.

4266. In your district had you much experience of inspection by the men under General Rule 38?—The inspection by the men varied very much in different parts of the district and in different mines. In some the inspection was all that was desired, and it was fairly frequent. In others it was very infrequent, and in many never done at all.

4267. When you say "very infrequent" do you mean that in some mines it took place once a month?—In one or two mines it took place practically once a month.

4268. As often as it was allowed by the General Rules?—It is allowed by the rule at least once a month.

Digitized by Google

I take it that that means they may make it oftener if they like. I have never known a case where they made such an inspection more than once a month, and that inspection once a month is very rare.

4269. I see that according to the wording of Rule 38 it would appear that it is the right of the men to appoint two of their number to inspect the mines as often as they please?—That is my view.

4270. The suggestion is that they should do it at least once a month?—That is suggested by the rule.

4271. In some mines you say that suggestion is carried into effect?—In very few mines it is.

4272. I suppose "once at least" must mean once at least, and if they chose to inspect twice a month they would have the statutory right to do so. That seems to me to be the meaning of the rule, but I do not know how it is generally understood. However, you say that is practically immaterial, because there is no mine that they would want to inspect more than once a month?—I have never heard of any. I should like to say that I do not think it is confined to the men of a particular mine. I think they may employ any practical miners. I had a case not long ago where they did so.

4273. If the men thought there were some practical miners in another mine who had greater experience, possibly, in inspecting mines, than any man in the particular mine to be inspected, you think that they would desire to have the expert advice, so to speak, of those miners rather than to send down two of their own number?—I do not know what was the reason, but they did appoint a man from a neighbouring colliery, together with another man from the colliery to be inspected, to inspect that particular mine, and it was objected to by the manager

4274. What was the result?—The result was that some pressure was brought to bear upon them; they had to give way, and to allow the stranger to go down.

4275. That is to say, the manager gave way?—Yes.

4276. Did the manager suggest that Rule 36 only applied to persons who were practical miners working in the particular mine?—I think that was their view. They never said so expressly to me. That must have been their view, or they could not have refused admission to the stranger.

4277. Do you think it is a reasonable thing or not?—Under certain circumstances I think it may not be unreasonable, but I would prefer that the men belonging to the mine should inspect. I think it is rather a reflection upon the miners of a particular colliery if they go outside those miners.

4278. But do you not think that some man in a neighbouring mine might have a great reputation with regard to inspecting mines, and that he might be well known to have a great deal of experience in that kind of work, and that it might be desirable to employ him?—It might in a few cases, but I think with the large mines—certainly in these two cases in point—there were plenty of men to be chosen quite as good in the particular mines.

4279. Then why do you suggest that the men wished to have an outsider?—I really do not know why they wished it. It never appeared. They simply decided at a meeting of a district or of a group of collieries. They met, and the officials in that federated area or sub-area decided that they would have a stranger and another man from the mine to go to the particular pit and inspect.

4280. Do you know anything about the man they employed? Was he a man who had had an unusual amount of experience in mines?—He was an ordinary miner, just a similar man to any others in the particular mine. But they were quite within their right to do so.

(*Mr. Ratcliffe Ellis.*) I do not think there has been any question, or certainly not much question, that other persons than those employed in the pit could inspect under this clause, but they must be practical working miners, and the question would be whether the men you refer to were practical working miners brought from outside.

4281. (*Chairman.*) It appears to have been the case of a practical working miner from another colliery?—Yes.

4282. And the objection appears to have been taken for what it was worth, that he had not practical experience in the particular mine which he was called upon to inspect. The objection appears to have been taken, but not sustained.

4283. (*Mr. Ratcliffe Ellis.*) Quite so; but if it is an inspection by persons who are working in the mine, one knows that they are practical miners. If it is an inspection by an outsider who is brought in, then the question might arise whether the man brought in was or was not a practical miner?—I said it was reasonable that the stranger should bring proof that he was a practical working miner.

4284. And he did bring that proof, I suppose?—Yes, that was done.

4285. And then he was allowed to go down?—Yes.

4286. (*Chairman.*) They raised no further objection?—The matter finished there; they made the inspection.

4287. And the only thing that the owners wanted to be sure of was that the man was really a practical working miner; and that if it could be proved properly and to their satisfaction, they would have no objection to his making the inspection?—Well, they made a strong point that they did not want strangers in the mine. They thought, and I rather agreed with them, that it was a reflection upon the body of men.

4288. At all events, that was only their opinion, and if the miners in the mine chose to take a different view they were within their rights in taking this man from outside?—They were perfectly within their rights, and I said so from the beginning.

4289. As regards inspection by the men, what do you think of it? Do you think it is a good thing?—I think within proper limits it is rather a good thing.

4290. What do you mean by "proper limits"?—That it should not be done too often, and not to such an extent as to relieve the officials of their duties. I think it is possible that it might be overdone.

4291. How do you mean "relieve the officials"; surely the officials would be responsible for working the mine, whether it was inspected or not? The men only inspect to see whether everything is going on all right or not?—Yes; but after an inspection has been made, if they get a clean sheet it might tend to laxity for some time before the period for another inspection came round again.

4292. Do you suggest it has ever been so in your experience?—I could not give you a definite case, but my impression is that it would have that effect, and that there should not be too much of it—in the same way as I think there should not be too much Government inspection. I think that would be quite as bad as too little.

4293. Then with regard to some mines you say there is no inspection at all?—That is so; and in some mines it really is not a serious matter.

4294. Did you take any steps to suggest to the men that it was advisable that they should occasionally inspect mines on their own account?—Yes, I frequently drew their attention to it.

4295. What did they say?—For various reasons they thought it was not necessary; but generally the question of expense is put forward as the chief stumbling-block.

4296. What do they pay a man who is inspecting—the same as if he is working underground, or more?—I presume he would be paid just what he was earning on an average, but I really do not know.

4297. Do you think anything ought to be done to throw the expense on someone else's shoulders, and not on the men's?—No; I think it should be paid for by the men. I think it should be thoroughly independent, if it is done at all.

4298. Do you find that there is any difference with regard to the conditions of working in the mines that are inspected by the men and the mines that are not inspected by the men? Do you think, on the whole, that the mines which are inspected by the men are better worked and, we will say, more safely worked?—No, I would not like to go so far as to say that, but, as a rule, those mines which are inspected by the men are mines in which something serious has happened at one time.

4299. They go on inspecting after an explosion or some other great accident?—Yes, that has been my experience.

Digitized by Google

4300. Then after a time they leave off the inspection?—It gradually eases off. There is always more inspection of mines generally immediately after a big accident.

4301. With regard to discipline and supervision of the mines by owners, in your district is that enforced principally by prosecution or by fines?—That, again, is very variable. Some owners—companies, rather—prosecute in nearly every case of breach; others, again, very rarely prosecute, and many never at all.

4302. There are mine-owners that you know of that have never prosecuted men for any offence, however serious?—Yes, I know of scores.

4303. What have you done in those cases? Have you remonstrated?—I kept telling them that they ought to do something to maintain discipline, and that if they did not take some steps I should be obliged to proceed against them. I have threatened them many a time.

4304. Have you ever proceeded against them?—Not in a specific case like that where they have failed, but, of course, I have proceeded against some owners. I have often told them it was wrong to continually condone those offences as they do.

4305. In the Swansea district you prosecuted the owners apparently twice only during the whole of the last five years?—I think that is so.

4306. And it would appear that the total number of prosecutions of the men is somewhat smaller in your district than in any other?—Yes.

4307. The largest number of prosecutions seems to be in the Yorkshire and Lincolnshire district, 784, and in your district it is only 212?—Yes, Yorkshire is a very much larger district.

4308. But still, 212 is a very small number of prosecutions. Then what is more serious apparently is that some mineowners do not choose to prosecute at all?—That is so.

4309. It seems to be a serious state of things?—Some of those who never prosecute say they fine the men occasionally, but I have never encouraged the fining of men, although I have acquiesced once or twice rather than take them before the magistrates, when pressure was brought upon me, showing that they were very decent fellows, and that they did not like it, and so on. Of course, nobody likes it, but there were special representations made in those particular cases that it was not desirable to take them before the magistrates, and I was asked my opinion about it, and I said, "Well, under those circumstances I will not press you if you do something, but you must do something."

4310. Supposing a workman clearly, by very culpable negligence, had greatly endangered the lives of a great many other workmen, surely you would feel it your duty to insist upon the owner prosecuting?—Yes, each case would be dealt with on its own merits. The particular cases I refer to in which the owners fined the men, or in which they wanted to be fined, I think were not such serious cases as you have mentioned; they were more cases of endangering their own lives, and perhaps that of another man, their assistant, in a particular place—not cases of endangering the whole mine.

4311. But would there not naturally be cases in the ordinary course of things, if discipline was never enforced by prosecution, where the miners would by their carelessness endanger, not only perhaps their own lives, and the lives of one or two of those working with them, but the lives of an enormous number of people in the pit?—Yes, it would depend very much on the class of mine; of course, there are many mines where it would be almost impossible for any act to endanger all the men, but there are others where several acts would endanger the whole mine.

4312. Would you say there was never a case in your own knowledge occurring in those mines where there has been no prosecution in which a man by most culpable carelessness has not only endangered his own life and that of one or two others working with him, but the lives of the whole of the men in the mine as well?—I cannot call to mind any case, but there are several cases where the owners have never prosecuted.

4313. There is a great contrast in the numbers of prosecutions of workmen for contravention of Rules with regard to matches and smoking, between your district and the Cardiff district; in the Cardiff district during 1903 there were 54 prosecutions, in 1904, 55, and in 1905, 52; whereas in your district, the Swansea district, in 1903 there were only 9 prosecutions, in 1904 there were only 3, and in 1905 only 10; that is an average of something like 6 or 7?—That is so. Of course there are many more fiery mines in the Cardiff district than in the Swansea district.

4314. (*Mr. F. L. Davis.*) Do you mean more gas?—No, there would be about three times as many fiery mines in the Cardiff district as in the Swansea district.

4315. Do you refer to mines with more gas in them and more dust—both?—Yes, probably more.

4316. The anthracite mines are not dusty?—Not nearly so dusty.

4317. (*Chairman.*) I see that in your district there were a good many prosecutions by the owners of the men for the offence of sleeping while in charge of a safety lamp?—Yes, by about two companies, I think; there are two companies which invariably proceed against the men for that offence, and others never take any notice of it.

4318. They do not even fine them?—Not that I know of.

4319. (*Mr. Ratcliffe Ellis.*) What does it mean?—It means at night the men who are employed as labourers, stowing rubbish and that sort of thing, go into a rubbish stall with a tram to clear it, and they sit down and go to sleep, and put the lamp down, and the fireman goes round in the course of his visit and finds the man lying asleep with his safety-lamp close to him.

4320. Is there a special rule prohibiting that?—The man is proceeded against under a particular Special Rule for not taking care of the lamp which is in his charge.

4321. (*Chairman.*) Is that a Special Rule in your district?—Yes, they catch him under a particular rule; it is always called "Sleeping while in charge of a safety-lamp."

4322. What do you say about the advantages of prosecution as against the system of fining; you say that in a very bad case the owners ought to prosecute, and that for minor breaches of regulation fines would be sufficient?—I think it depends very much upon the man and upon the frequency of the offence.

4323. For repeated offences you would advocate prosecution?—Yes, I think I would deal with every case on its merits, and I should not be inclined to prosecute a man for the first offence unless it was a very grave one indeed. I think I would give him a chance to do better by fining him, or doing something with him. I am not in favour of wholesale prosecutions, but rather the other way; I do not think it has a very good effect.

4323*. But in your district apparently discipline is not properly enforced either by fines or by prosecutions?—Discipline is not so good as it should be, I must confess.

4324. I suppose every mine owner would naturally, in his own defence, fine sometimes, even if he did not prosecute?—I am not aware that they all do; I think most of them often refuse to fine, and do not do anything at all.

4325. You think there are some mines in which discipline is not enforced either by fine or prosecution?—I think that is so—indeed, I am certain of it.

4326. The result is that the discipline is lax in your district?—It is not so good in my late district as it is in some others, especially some of the English districts.

4327. With regard to Rule 4, as to inspection by officials of the mine, do you think that inspection is sufficient, and that that rule is adequate?—The General Rule and the Special Rule supplementing it I think made it adequate; that is to say, there is one inspection before the shift, and another one by the fireman during the shift, and a third one, either by the fireman or by another official, which I think is rather better, because it gives a check on the fireman.

4328. That is under your Special Rules?—Under the Special Rules.

4329. That is obligatory?—Yes.

4330. Do you think that that Special Rule might be

Digitized by Google

Mr. J. T. Robson

31 Oct. 1906.

made a General Rule?—Not only that Special Rule, but many others might be made General Rules.

4331. For the moment I am only speaking of this one?—Yes.

4332. Do you think that your Special Rule with regard to inspection by officials which is in vogue in your district might very well be made a General Rule; is that your view?—That is my view.

4333. Do you think that the inspections by the officials are sufficiently thorough?—Yes, they are fairly good, but now and then it is found that a man has rather too big a district to inspect.

4334. Then some of the districts are too big, and some, you think, are fairly satisfactory as regards size?—Most are satisfactory, but now and then we have come across cases in which a fireman had too large a district for proper inspection.

4335. Then did you point that out to the owners?—Yes.

4336. And did you find that they were willing to meet you?—Generally I have been met on that point, although they have been a little stiff about it occasionally.

4337. With regard to accidents, I see that during the last year you had 12 deaths, and 37 persons injured from explosions?—Yes.

4338. How does that compare with previous years?—That was more than the previous year, I think.

4339. More than the usual number; it is six more than 1904, I see?—Yes, 11 deaths were caused by the same accident.

4340. What was that accident caused by?—An explosion of fire-damp.

4341. That was an explosion on January 21st, 1905. You put down this accident, in which 11 men lost their lives, to defective ventilation?—Yes.

4342. Was there a prosecution?—There was a prosecution.

4343. What was the result of it?—It was dismissed.

4344. The owners were exonerated?—They were—and the manager.

4345. They suggested that the cause of the accident was that the fireman committed an error of judgment?—That is so.

4346. So that it was the fault of the fireman, and not the fault of the owner or manager?—Yes.

4347. With regard to explosions, you suggest that a certain amount of watering should be made compulsory?—I think it is desirable.

4348. And you say that you would have a General Rule, providing that "unless some other means equally efficient are available and in constant use, so much of every intake and return airway, and of every travelling road shall be kept so wet by watering that an explosion happening in any district of a mine shall not be extended beyond that district"?—Yes, something to that effect.

4349. That is to say, what is known as zone watering, I suppose?—I would leave it to the management of every particular colliery to water as much as they thought was necessary; I would not have a hard and fast rule—the circumstances vary so much.

4350. Probably you think it would not be necessary to water the whole, say, of the travelling roads, but that there should be wet zones here and there to prevent the explosion spreading. Is that your idea?—Not the whole length of every road, but I think every road leading into or from a district should be watered to a certain extent, or for a certain length, but I would not specify a length.

4351. What I meant was that you believe in what is called the system of zone watering?—Yes, it may be called "zone watering." I think that as a first attempt would be going far enough.

4352. (*Mr. Cunynghame.*) You mean, I suppose, junction watering, where roads run into one another?—It would of course apply in that case; but I think every road, not only a main intake where watering has been generally confined to up to the present, but other roads, should be watered, because it is quite possible for an explosion to travel out by another road apart from the intake. There have been cases where it has done so.

4353. (*Chairman.*) Do you wish to make any further statement about watering?—No.

4354. What is done in your district in the way of watering?—Some of the more important mines are watered very much in that way, and perhaps a little further—an attempt is made to water the whole of the engine planes and parts of other roads.

4355. So that you think in some mines in your district watering is carried out to a sufficient extent?—Yes, probably—that is to say, it is attempted, but whether it is sufficiently done or not I am not prepared to say. I rather suspect there is a portion of it not wet enough; that has always been my feeling—that the thing has been done in a sort of half-hearted manner; an attempt has been made to water, but not to thoroughly water in a particular part. I would rather depend upon a portion being thoroughly well watered than upon indifferent or spasmodic watering over the whole length of the road.

4356. Do the owners raise any difficulty with regard to watering—as to the lifting up of the floor, for instance? Do they say that watering would tend to make the floor rise?—In one or two isolated cases that has been urged as a reason against it; but I think it is always made too much of.

4357. Do you find that the sides and roof are sufficiently watered as well as the floor?—No; where they do attempt it I do not think it is quite sufficient.

4358. Would you say that it was necessary to water the roofs and sides as well as the floor in order to prevent explosions travelling?—Yes, by all means.

4359. Is it not rather more difficult to water the sides and roofs than it is to water the floor?—Not at all; it is no more difficult. If you have the appliances for doing it, it can be done perfectly well by pipes and hose.

4360. (*Mr. Ratcliffe Ellis.*) I see you speak about the effect of watering in connection with the accident which you have referred to in the last paragraph on page 12 of your report?—Yes.

4361. (*Chairman.*) You say: "This explosion affords another proof that a thoroughly wet road will almost certainly arrest the progress of an explosion. The slant, especially near the bottom, was wet, and No. 7 West level to a point beyond the No. 3 tophole was very wet, having some inches of water on the roads. Inside the level was fairly dry. The blast never reached the main slant, No. 7 East, or No. 6 East." That, I suppose, was the result of the watering?—That was the result of natural water, not artificial watering at all.

4362. It was naturally damp, I suppose?—It was naturally wet.

4363. And that stopped the explosion?—That stopped the explosion.

4364. What sort of wagons are in use in your district; are they covered or open wagons?—Open wagons, and in some cases open at one end, I am sorry to say.

4365. Then do you think that those open wagons are objectionable?—It would be better to have them boxed all round.

4366. Supposing that the wagons are watered as they go along, would that do away with your objection to open wagons?—It would mitigate the evil, but I do not think it would remedy it altogether. I think still some dust would shake out of the bottom, the sides, and the end.

4367. Then do you think it ought to be made compulsory within a reasonable time that an improved type of wagon should be instituted?—I would not go the length of making that compulsory. I think it should be left to the people to deal with. It is too minute a matter to legislate upon—to stipulate the kind of wagon. I would legislate in more general terms.

4368. You would give a sort of option to the owner, if he has old-fashioned wagons, that he should do something to wet them?—If he has old-fashioned wagons he must have more dust to clear away, and he must have more water to put on to keep them wet, and so on. He would naturally by-and-by try to get the best thing, in order to save expense.

4369. So that you say an owner might meet the difficulty about dust in two ways, either by having an improved type of wagon, which would mitigate the quantity of dust, or else by a more complete system of watering?—That is so. It is a serious matter to alter at a colliery where they have a particular kind of tram.

Digitized by Google

4370. Then your experience is, from the investigations which you have made at inquests upon these accidents, that a complete stop would be put to an explosion by a very wet zone of, say, as much as 150 to 200 yards, and that an explosion could not pass that?—I should not like to say the distance, but I think that is the first thing that ought to be attempted, and the first thing that will be likely to be satisfactory—that each district should be isolated by parts of the road being so thoroughly wet that an explosion happening in one would not be likely to pass into another.

4371. How far should you say that a wet zone would be absolutely impervious to an explosion?—I should not like to say; that is a matter for proof. I do not think anyone can say that until it is tested.

4372. So that you do not think even a wet zone of 200 yards would be an absolute bar to an explosion?—I do not think it would in every case, but I think it would in a large number of cases. For instance, a wet zone of 40 or 50 yards stopped the explosion in the Elba Colliery.

4373. With regard to the first General Rule as to ventilation, I understand you are of opinion that a cap on safety lamps is a test of inadequate ventilation?—Yes; I think that where there is a clearly defined cap on a safety lamp it should be a proof that the place is not ventilated within the meaning of the first General Rule, and that all work other than what is necessary to remedy the defect ought to be stopped in that place.

4374. Then do you think that General Rule No. 1 is sufficient as it stands in general terms—that "An adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases to such an extent that the working places of the shafts, levels, stables, and workings of the mine, and the travelling roads to and from those working places, shall be in a fit state for working and passing therein." That is a very general statement; do you consider it is sufficiently definite?—My difficulty has always been as to what is really meant by "a fit state." That is liable to be interpreted in very many different ways, I am sorry to say; for instance, the magistrates have interpreted that a colliery was in a fit state where there was a half an inch of cap. I do not think that colliery was in a fit state where there was half an inch of cap.

4375. Is it the fact that a half an inch of cap would appear on some lamps where no cap whatever would appear on others? It would depend upon the kind of illuminant used, would it not?—I hardly think so—not to such an extent as that. You might have a very small cap on one lamp and none at all on another, but not half an inch difference—at least, I have not observed it.

4376. Then would you consider that the first General Rule should be strengthened by saying that a cap on the flame of a safety lamp should be a test of inadequate ventilation, and that whenever such a cap was found the men should be withdrawn?—I think so.

4377. You would be in favour of that?—I am in favour of a clearly defined cap being the test; I would not go further than that.

4378. We should like to have your definition of a clearly defined cap. Is there any definition which you would like to give?—I think I would put it in this way: It is a cap about which there could be no dispute between the inspector and the manager as to it being a cap. I have had cases in pits where it has been argued whether it was a cap or not, and where it was doubtful; but, mind you, I have had very many more cases where there could be no doubt whatever about it.

4379. (*Mr. Smillie.*) That would be a clearly defined cap?—Yes; where there should be no dispute, and the man could not be such a rascal as to say that was not a cap.

4380. In cases of that kind where you have agreed, the magistrates have still found that it was doubtful?—In one particular case that was so.

4381. (*Chairman.*) Then you consider that there should be some strengthening of General Rule 1 in the way of some definition as to what kind of ventilation constitutes a fit state for working and passing in the mine?—I think it is highly desirable.

4382. With regard to the use of safety lamps in your district, are they in use entirely throughout your district?—No; there are many mines where they still use open lights, and in which a little gas is now and then seen.

4383. Do you think that is right?—No, it is wrong, in my opinion. *Mr. J. T. Robson.* 31 Oct. 1906.

4384. Then what would you do in such cases?—I think there should be more power to enforce the use of safety lamps.

4385. (*Mr. F. L. Davis.*) I think your late district, of which you are speaking to-day, is almost entirely anthracite?—No.

4386. A good portion of it is anthracite?—No, only about 2½ millions or 2¾ millions is anthracite out of about 10,000,000 altogether of coal—that is, only about one-fourth anthracite.

4387. Is it considered to be steam coal or semi-bituminous?—Three-quarters of it is steam coal and bituminous coal, and about one-quarter anthracite, roughly.

4388. (*Chairman.*) Does not Rule 8 allow you to introduce safety lamps in all cases where you think they ought to be introduced?—No, Rule 8 is a weak rule—very bad to use as a lever in getting in safety lamps.

4389. Did you have any difficulty with the owners; did they object to introducing safety lamps?—Yes, I have had great difficulties for years, and I have no doubt the present inspector will have the same difficulties.

(*Mr. Ratcliffe Ellis.*) Might I ask whether there has been any difficulty with the men as well as with the owners?

4390. (*Chairman.*) What attitude do the men take up?—In many cases they are totally averse to the use of safety lamps.

4391. (*Mr. Enoch Edwards.*) And are encouraged by the owners?—Yes, they are dead against the inspector on that point.

4392. (*Mr. Smillie.*) But is it not a question of payment, because they feel it will interfere with their earning powers? If they were paid a tonnage rate they would not object?—It is not always that. Of course, the question of payment comes in, but I keep payment away from my argument always.

4393. But the men cannot, of course?—The men cannot. They want 7½ per cent. for lamps always, and they generally get it too.

4394. (*Chairman.*) Have you had explosions in your district from the use of naked lights lately?—Yes, we have had several small explosions. Every year it is the same, and they generally take place at the same collieries, and still they will not put in safety lamps; they prefer to get a few men burnt now and then to working with safety lamps.

4395. Have you had any cases of fatal injuries?—Now and then a man dies from the result of injuries by a small explosion.

4396. But you have several small explosions every year in which men are occasionally injured?—Yes, too many. I am sorry to say the district has a very bad reputation for small explosions, and it always has had. It is better than it used to be, considerably better, but still there are far too many.

4397. You have no special rule in your district with regard to the use of lamps?—No, I utterly failed to get one ten years ago.

4398. How would you suggest that Rule 8 should be altered?—I should like myself to say that wherever fire-damp has been found in a mine that mine shall be worked only with locked safety lamps.

4399. That that mine should be for ever worked with safety lamps?—Yes, if once they put them in I think it is not likely that they will be taken out again.

4400. With regard to the construction of safety lamps, do you have any screw locks in your district?—Yes, there are still a considerable number, but they were getting less and less every year.

4401. They are never replaced by new screw-lock lamps? Where an old lamp is past service it is replaced by a modern lamp?—They are replaced by a more modern lamp with a more secure mode of locking.

4402. Have you anything to say as to particular types of lamps?—I do not think it would be desirable to stipulate any particular type of lamp, beyond saying that it shall be a safe lamp. I think that should be left very much as it is.

4403. We were told at a previous sitting of the Commission that a fatal accident had happened through

Digitized by Google

Mr. J. T. Robson.
31 Oct. 1906.

a safety lamp being passed with no gauze on it, although the safety lamp in question ought to have had a double gauze, I understand. But it seems to me to be rather strange that that accident should have happened, because I saw the testing of safety lamps in South Wales the other day, and there, at all events, before a lamp is finally screwed up it is given to the men in such a form that they can take off the outside of the covering of the gauze and look at the lamp for themselves to see whether the gauze is on or not?—That is so.

4404. Is that the rule in your district?—That is not a rule, but that is done in some places in my district. In the majority of cases there is not such a good check on the lampman as that.

4405. But it is a very extraordinary thing that the gauze should be left out, is it not? It must be gross carelessness on the part of the man who makes up the lamp?—Yes, but it has happened. Many years ago it happened in a case where a man took a lamp down in search of a man who was supposed to have a lamp without a gauze. He went all round the pit and came out, and he was the very man who had the lamp without the gauze.

4406. (*Mr. Enoch Edwards.*) So that he found it?—Yes. You see the lamp was really without the gauze in the lamp-room, and the man got confused, and said, "A man has gone down the pit with a lamp without a gauze," and someone said, "I will go down and find him and bring all the men out," and he came back with the very lamp which had no gauze.

4407. (*Chairman.*) I suppose it is impossible in all cases to prevent accidents happening. A suggestion has been made to us that lamps might be so manufactured that it would be impossible to cover them up without the gauze being inside—that the fact of the gauze being inside would enable the lamp to be covered up, and otherwise not. Do you think it would be desirable to have some such lamp as that in use?—I think it is desirable to have as much check as you can on safety lamps, but I do not think you should legislate too much about them. You should not make it too minute as to what is required; you should leave it in more general terms, otherwise the cure will be worse than the disease, I am afraid.

4408. Then would you suggest that a system of testing the types of safety lamps should be established?—I have no objection to a test of the type, but I do not think it should be a final test. I mean to say it should not be like the Woolwich test of explosives. I do not see any good in that. I think it should be left to the people themselves to get the best lamp they can. I would have as many places in the country as I could get at which to have the lamps tested, and I would encourage testing by all means and every means, but I do not think there is any good in making these things so final.

4409. But surely, if it was discovered at an official testing station that certain lamps were more efficacious than others, would it not be desirable that the Home Office, for instance, should prohibit the use of certain lamps and say that only certain kinds of lamps should be employed?—They could prohibit the use. For instance, I should suggest that they should prohibit the use of an ordinary Davy lamp; I think they might go thus far. But that is a different thing; that is like prohibiting the use of gunpowder; that was right, but that has led to the introduction of numerous explosives which, although they were all right at Woolwich, were found to be all wrong in the pit. I think the same thing might happen with regard to safety lamps. I am not in favour of it.

4410. Have you had many cases of accidents due to defective forms of lamps?—I cannot call to mind any accident due to a defective lamp.

4411. Have you found any cases of accidents owing to lamps having been carelessly examined—for instance, the gauze having been left out, or something of that sort?—I do not think so. I really cannot call to mind any. There has certainly nothing serious happened Such a thing may have been discovered once or twice years ago.

4412. (*Mr. Smillie.*) Was it not thought that the great explosion at Dixon's, Blantyre, was caused by the old Scotch type of safety lamp? Was not that the finding of the Court?—That is the old gauze lamp, which has been obsolete, or practically obsolete, for very many years.

4413. But is it not the general belief that it was caused through that?—Yes, I think it was.

4414. (*Chairman.*) With regard to shot-firing, is there much shot-firing in your district?—Yes, a very considerable quantity.

4415. Have there been many accidents owing to shot-firing?—No, not so very many accidents; they are gettng less and less each year in proportion to the amount of blasting.

4416. The men are getting more careful, you think?—I think so.

4417. Do you think that they should be prohibited from shot-firing during shifts?—In certain mines I think it should be prohibited to fire shots during the shifts.

4418. Then you would have Special Rules applying to certain mines in your district, and not applying to others, as regards shot-firing?—It would not necessarily mean a different rule; I think the same code of rules could be made to apply.

4419. That you could so frame a rule that it should be only applicable to the mines to which it ought to be applicable, you would say?—Yes, I think so.

4420. You would not frame a rule prohibiting shot-firing altogether during shifts, but you would have a Special Rule prohibiting shot-firing unless certain conditions applied?—Yes. I think it could be done. It is certainly desirable that there should be no shot-firing while the men are in the pit in all the large and deep, dry and dusty, steam coal collieries; they are a class quite distinct. Then there are others which, although they are not steam coal collieries, yet are highly bituminous, and they are almost as bad; I think it should apply to those mines as well. Then there is a third class where I think you need not go so far, and it need not be made so stringent—that is a class of mines in which it would be reasonably safe to fire during the shift; they are mines in which very little firedamp is found, and they are not nearly so dry and dusty. I do not say that they are not dry and dusty in parts, but as mines, taken generally, they are not of the character of those I first mentioned—that is to say, steam coal collieries or highly bituminous collieries.

4421. But would not that be better met by the enactment of a Special Rule that there should be no shot-firing during shifts, and that it should apply only to particular specified mines, of which you might make a list? It is not necessary that a Special Rule should apply to all the mines in your district; a Special Rule might be made to apply, I understand, to certain particular mines?—I would only make it apply to certain mines. I do not know what is the best way to do it, but that is certainly what ought to be done, in my opinion.

4422. (*Mr. F. L. Davis.*) You mentioned two or three classes. The other class you have left out in your district, I think—namely, the anthracite; could you put them as a class at all and say it might be allowed there?—It would embrace not only the anthracite mines, but it would embrace several other mines where they work ordinary semi-bituminous coal, but worked from either shallow pits or levels which are more or less wet, and where I think a big explosion could not happen.

4423. You would have to classify the mine?—You would have to classify the mine. I would have no difficulty myself in doing it in my late district.

4424. (*Chairman.*) There is a Special Rule in operation in the North with regard to shot-firing which several inspectors have approved of. I should like to know whether you think it should be made a General Rule or not. It is the Special Rule No. 76a in the Manchester District. I will read the rule to you, and I will ask you to say whether you agree with it: "No missed shots shall be unrammed, but in all cases a fresh hole shall be drilled, which shall not be within 12 inches of any hole which has missed fire, and shall, so far as practicable, be parallel with it. Should the missed shot contain a detonator, the shot-lighter shall, before firing the fresh hole, attach a string to the fuse of the missed shot and secure it to a prop or to the cable. Immediately after firing the shot-lighter shall, with his hands only and with the greatest care, search the coal or stone, and if he fails to find the detonator or is not satisfied that it has been exploded by the second shot,

Digitized by Google

he shall cause the coal or stone to be loaded with the greatest possible care and sent to the surface for further examination. Should the missed shot not be dislodged, further holes must be drilled and fired until this is effected. He shall report the circumstances to the under manager without delay and hand the detonator to him when found." Do you think that would be a good way of dealing with shot-firing?—That is a very good way of dealing with it, I think, but I do not know that I should go the length of saying that that should be made a statutory rule. It seems to be very long.

4425. However, you agree that it is a good rule, but you are not sure that you would go so far as to make it a General Rule?—It is extending the present law, which says that no hole shall be bored within 6 inches; it makes it 12 inches, and gives a little more margin. With regard to attaching the string to the detonator, that is good, but it is going rather too much into detail. The general law now provides for 6 inches; it is an extension of it, and going more into detail.

4426. Do you agree with that extension from 6 to 12 inches?—I agree with it. A lot of people do it now in my district. They found it was rather sailing too near the wind to bore a hole only 6 inches off; unless you were very sure of the direction the second hole went into the first one.

4427. With regard to falls of roof and ground, are those accidents increasing or diminishing in your district?—If you take a period of years I think there has been a slight decrease, but latterly there was rather an increase—in the last year or two.

4428. I see the smallest number was in 1903, when you only had 16 deaths, and that last year you had 34?—Yes; that was a very great increase.

4429. To what do you attribute the increase?—I really could not say; there was no special reason for it.

4430. How do the Special Rules for timbering work?—The results from the new rules are very disappointing.

4431. You have no suggestion to offer as to why the new rules should have worked badly?—No, except that I do not think managers as a class have approached the rules or tried to put them into force in so satisfactory a manner as they ought to have done. I think they have rather fought shy of it and fixed the distances too great, so as to avoid friction or disputes afterwards.

4432. Then you think that accidents might be diminished and the working made more safe if you altered the rules fixing the minimum distance between props at a less distance than is the case now?—Yes, that would be one way of doing it. There would have to be far more propping, if you want to reduce the accidents; I think that follows. It is a question of closer propping and quicker propping—that is to say, quicker after the coal is removed. I am coming more and more to the opinion that we might as well go back and rely entirely on the 21st General Rule; the more I look at that rule the more I see it is about the best rule we could have. I have always kept it before owners and managers.

4433. Then you think that the attempt to put in detail the requirements of propping works unsatisfactorily?—I think the results have been very unsatisfactory generally, not only in South Wales, but in many other places as well.

4434. It has been suggested to us that the persons who are responsible for this propping are inclined to think that when they have complied with the minimum requirements they have done all that is necessary, and they are not disposed to take as much responsibility upon themselves as they did previously when there were no definite rules as to what was to be done?—Yes, that may be so. It is a bad thing to stipulate a distance if it is a big distance; it is far worse than nothing at all, because if a man goes into a place and he finds the place is wide, he cannot say anything to the collier, because he would say "I have obeyed the rules."

4435. Do you think propping ought to be done as far as possible by special men who understand the work, or that the working miners ought themselves to do their own propping?—I am not against employing special men, but I see no reason to alter the present system, where it is in vogue, that the colliers should do their own propping. They are quite competent to do it.

4436. But in some cases there are special men who do the propping?—Yes; but the special men are chiefly confined to two or three counties—that is to say, Durham, Northumberland, and perhaps Cumberland. There is very little of it done in South Wales, Swansea, or Cardiff.

4437. What do you say about the system?—It has something to recommend it. The employing of a deputy carries with it the responsibility of a man in an official capacity, and he feels his responsibility, and it ensures a smaller district being in charge of the official, but I cannot say that there is any other point in favour of it; the work can be done perfectly well by the colliers.

4438. Then you are not very keen on the employment of special men for that purpose?—No; I would not press for any alteration. The point is that it should be done more often than it is done, and more quickly after the roof is exposed, and that it should be done closer together; that is what you want to aim at. It is not a question of who should do it; it is the getting of it done.

4439. Then you think, as I understand, that these present rules require amendment, even if they are not done away with altogether, and that the minimum distance should be made much smaller?—If I were going back to be an inspector, I would as soon see them done away with as keep them. I think they are almost useless as they are.

4440. You would sooner see them done away with?—I would "peg" away at the 21st Rule, and have the men make the places safe; and if they did not, I would prosecute and let the question be decided before a Court.

4441. With regard to establishing Special Rules, do you agree that the present system of establishing Special Rules is satisfactory or not?—I think it is very clumsy, unwieldy, and unnecessary. There are too many details about it.

4442. How would you set about improving it?—I think it should be simplified by thoroughly discussing any alteration between the representatives of the owners, the representatives of the men, and the inspector in the first instance, threshing out everything thoroughly and trying to agree, and then laying the matter before the Secretary of State for his sanction.

4443. If you agree, but supposing you do not agree?—If you do not agree you go, I suppose, to arbitration, which is also very unsatisfactory; but I cannot suggest any better plan than that.

4444. You think it would be necessary to go to arbitration, and that the Factory Act system, whereby the Secretary of State is paramount after hearing what is to be said on both sides, would not do for the establishment of Special Rules?—I have no experience of the framing of rules under the Factory Act.

4445. But you think it would be necessary if, after the conference which you suggest there should be between the owners and the miners and the inspector, they could not come to terms, that they should go to arbitration rather than leave the matter to the Secretary of State?—It might be in some cases, but I think, as a rule, the owners, the men, and the inspector would probably agree upon most points, if not all, if it were left to them and they had plenty of time to discuss the matter in a friendly way across a table. I think it is by far the better plan.

4446. Is it not left to them now, and can they not agree now?—No, it is not; the men have not much of a say at present.

4447. They have no say?—No; it is only by sufferance.

4448. Then what sort of means would you suggest of ensuring that the men should be consulted with regard to these Special Rules?—No doubt it would require an alteration in the law to make it compulsory, but I do not think it requires such elaborate machinery as there is under the present Act to get Special Rules established.

4449. But I understand the great complaint you now make against the present mode of establishing Special Rules is that the men have no sufficient means of making their wishes known?—They have not in the first instance. You see, they only have the opportunity of objecting after the rules are practically settled and posted up. It means this—that if they do send in an objection they are very often overruled either by the inspector or the Home Office, or somebody, and thrown aside, and they have no proper

Digitized by Google

Mr. J. T. Robson.

31 Oct. 1906.

opportunity. Besides, it is too quickly done then—posting up the rules.

4450. What sort of opportunity would you suggest the men ought to have?—It might be arranged that when any alteration of a rule is required, either by the Secretary of State or by the owners, the matter should be brought before representatives of the colliery or collieries and representatives of the men and the inspector on behalf of the Secretary of State, and that they should be allowed to try to agree upon the rule, and if they cannot, I suppose the only thing is arbitration. I do not know of anything else. But I do not think it should be left to any one man except by arbitration, and then both sides are heard.

4451. Then would you give the miners themselves an initiative in suggesting a new Special Rule? Should they be empowered to suggest to the owners new Special Rules? I suppose informally they would suggest to the owners new Special Rules?—I think it would follow that they should have some such right.

4452. Is it the fact that the miners now to your knowledge have ever gone to the mine-owners and suggested that there should be any alteration of the Special Rules or any new Special Rule made?—Not that they have ever gone to suggest new ones, but I will tell you what they have done. They have sometimes wanted to meet and discuss, and they have not always been allowed to discuss rules.

4453. But they can always discuss anything they like, I suppose?—Yes, but not together with the inspector and the owners' representatives.

4454. (*Mr. F. L. Davis.*) But in some cases they have?—Latterly they have. They have during the establishment of what we call the new Propping Rules; they were allowed in that case. But 10 years ago they were not allowed.

4455. (*Mr. Cunynghame.*) I was rather surprised to hear your first statement. You were not alluding to the present day, but to 10 years ago, when you said that they were not allowed?—Yes, 10 years ago.

4456. I do not think you would say that they are not allowed at present?—No.

4457. (*Mr. Smillie.*) But they have no right; they have never had the opportunity in Scotland?—It is only by sufferance, and I think they ought to have statutory power.

4458. Where their lives are concerned?—Yes.

4459. (*Chairman.*) Then you think that before a Special Rule is established, directly a mine-owner comes to the conclusion that a new Special Rule ought to be adopted, or that a Special Rule which is in vogue ought to be amended, the management should give some sort of notice to the miners of their intention?—I think so.

4460. And that then, before there should be any posting up of the rule, or any sort of official recognition of it in any shape or form, the men should be invited to attend a sort of conference—something of that sort?—That is my meaning precisely.

(*Mr. Enoch Edwards.*) That has been done in many cases, but it has always been a question of the view which the inspector of the particular locality himself took of it.

(*Chairman.*) If the inspector of the particular locality thought fit to suggest that the men should be conferred with, they were conferred with. Is that it?

(*Mr. Enoch Edwards.*) They were conferred with.

4461. (*Chairman.*) I omitted to call your attention to the question of haulage accidents. I believe you wish to make a suggestion with regard to haulage ways?—Yes.

4462. I think your suggestion is that there should be a 2-ft. gangway between the wagons and the sides?—Yes. The suggestion which I should like to make is this: Where a distinct and separate travelling-way is not provided and used, I think it should be made compulsory that every self-acting incline and every engine-plane shall be provided with a clear space for persons travelling thereon, such space to be at least 2 ft. wide, and to extend the whole length of the incline or plane on one and the same side.

4463. It is not on both sides, but on one side?—On the same side all the way.

4464. Have you any other suggestions to make with regard to haulage?—Yes. I also think it desirable to make a compulsory rule as follows:—"Every shackle, coupling-chain, or other means of attaching trams or tubs, shall be so constructed that it is not liable to become detached while the trams or tubs are in motion."

4465. (*Mr. F. L. Davis.*) You refer to shackles and coupling-chains and the danger of their coming apart?—Yes, underground inclines. We have had a fearful loss of life by reason of shackles breaking; it is very bad in the South Wales district.

4466-7. (*Chairman.*) Have you anything to say with regard to winding?—The only remark I should like to make is this: I think it is desirable that the breakage of a winding-rope should be reported to the inspector of a district.

4468. (*Mr F. L. Davis.*) That is one of the things which is not now obligatory unless there is an accident?—Unless there is a serious injury or loss of life it is not obligatory.

4469. You think that the breakage of a rope should be reported?—Yes, that any breakage of a winding-rope should be reported for the information of the inspector.

(*Mr. Cunynghame.*) That last point has been provided for by the Notice of Accidents Bill. Under that we should have power to require it to be reported, whether anybody is hurt or killed or not.

(*Chairman.*) If an accident takes place.

(*Mr. Cunynghame.*) Yes, whether anybody is injured or not.

4470. (*Chairman.*) Have you anything to say with regard to safety catches and appliances of that description?—I have had no experience of so-called safety catches on cages—that is to say, for arresting a cage in the event of a rope breaking.

4471. Then we come back again to the Special Rules. I think you have already said you are of opinion that there are a great many Special Rules which might be made General Rules with advantage?—I think so, a great many.

4472. In fact, that the General Code might be greatly enlarged and the Special Rules correspondingly diminished?—Yes, that is so.

4473-4. With regard to investigation into mine accidents, you know the Secretary of State has power under Section 45 to institute a second inquiry after an inquest has been held, and it has been suggested that it might be desirable that the power of granting a second inquiry should not be left entirely to the discretion of the Secretary of State, but that perhaps there might be some means of compelling a second inquiry to be held even over the head of the Secretary of State. Do you know of any instance where the men have wanted a second inquiry and where it has not been held?—No instance has occurred where I have been in charge, but, of course, I have heard of cases.

4475. You have never known a second inquiry held at all in your district?—There has never been any second inquiry held in my district while I have been inspector. There were such inquiries held in Scotland where I was assistant inspector, but at that time in that country there were no Coroners' Courts whatever.

4476. In Scotland the state of things is different?—Yes, they have different laws.

4477. You have had no experience of the men wishing for a second inquiry in cases where it has been with held?—It has never been represented to me that there was any need for a second inquiry in any case.

4478. Do you think that before the finding of a coroner's jury at an inquest is arrived at a sufficient amount of evidence has been produced to show the cause of the accident?—Yes, in every case that I know of.

4479. In every case you think there has been a fair and sufficient investigation?—That is my opinion.

4480. With regard to rescue work, have you any ambulance corps in your district?—Yes, several in the more important of the mining centres.

4481. What do you think about the ambulance arrangements?—They are very good. I have encouraged ambulance teaching and classes as much as I could. I have probably got them instituted in one or two places where they were not in operation.

Digitized by Google

4482. Do you think that the system of ambulance teaching might be extended with advantage?—I think it might. It ought to be encouraged as far as ever possible.

4483. Do you know anything about pneumataphors or breathing apparatus for going down mines after accidents?—Only by hearsay. I have no practical experience of them.

4484. With regard to the question of plans, we have been told that old plans of mines have sometimes been found to be very defective. Have you had any experience of that?—I have had cases where the plans sent in were not satisfactory.

4485. Do you think that new plans, plans which have been recently made, are satisfactory?—As a rule the working plans at present are satisfactory. There are isolated cases where it is not so, but every case is dealt with as it arises. In many instances I have induced owners to have a complete set of new plans made—at considerable expense, of course. I have no great complaint to make about plans.

4486. Then how have you discovered that those plans were not accurate?—It is very difficult to explain how you discover a matter of that kind, but I could give you one instance perhaps. If you are working from two different points in the same colliery and you see that the workings are a certain distance apart according to the plan, and when one side is stopped and the other side approaches, the side approaching touches the old working, say, 20 yards apparently before it ought to do so.

4487. Then it is very clear that something is wrong?—Then you prove the inaccuracy of that part or some other part of the plan.

4488. It is a very serious thing to find a matter of that kind; it might lead to flooding?—Yes. We have had a case of inundation which was clearly shown to have arisen from the inaccuracy of an old plan.

4489. Are you satisfied that the most recent plans are in every case accurate?—Not in every case; but I say there is no ground for any general complaint about them. They are, as a rule, very satisfactory, and they are always being improved. More and more of the people now employ qualified surveyors, either kept at the mine or sent from a qualified surveyor's office.

4490. Do you think it might be made compulsory upon mine owners to employ a qualified surveyor?—I do not know. I think perhaps that again is too much detail. I think you must leave something to individuals.

4491. Have you had any scare in your district with regard to ankylostomiasis?—Nothing has happened in my district.

4492. And you are pretty sure that there is nothing of the kind there?—I think there is nothing of the kind. The doctors are fairly on the alert all over the district, and nothing has happened.

4493. Lately, I believe, sanitary conveniences have been put up for the miners, and I understand the miners are willing to make use of them, are they not?—In some places. I do not think there is much to complain of in South Wales; the habits of the miners are very good indeed.

4494. With regard to discipline in mines, you say in your statement, which I have before me, that you think it is desirable that power to search should be given to certain officials to check irregularities by workmen, such as taking into the mine matches, pipes, etc., implements for opening safety lamps, prohibited explosives, or those not expressly authorised to be used in the mine by the owner, agent, or manager?—Yes.

4495. That ought to be done by some General Rule, you think?—Yes.

4496. But the men are searched in many cases, are they not?—Men are searched now and then, but I think there is a feeling that the officials should be authorised to do it—that they ought to have power; there is a sort of delicacy about doing it.

4497. There is no legal power to search them, but in point of fact they are searched?—They are searched in some places, but it is not so well done as it ought to be. Indeed, I believe there are places where they never do it at all, and I think they ought to do it. But the officials certainly ought to be fortified with some power.

4498. Then you say that you think General Rule 36 requires the following amendment: after the word "force" you would add "or in order to maintain discipline and increase the safety," so that it would read "Every person shall observe such directions with respect to working as may be given to him with a view to comply with this Act or the special rules in force or in order to maintain discipline and increase the safety in the mine"?—Yes, I would add that to the purpose of the notice and give the manager rather more power there.

Mr. J. T. Robson. 31 Oct. 1

4499. As regards examinations for managers and under-managers' certificates, you say you think there ought to be one examination for each class of certificate, and not eleven examinations in eleven different places, as there are now?—That is so.

4500. You also think that the number of examiners should be reduced to four?—Yes.

4501. The number is thirty-three, that is to say, three in each district. Then you think that each set of examiners should submit to the Secretary of State a set of questions for each class of certificate?—Yes.

4502. That would be for managers or under-managers?—Yes, for the two classes.

4503. From which set of questions the Secretary of State would select the set for each class to be sent to each mining centre immediately before the dates fixed for the examinations respectively?—Yes.

4504. It has been suggested that it might be perhaps desirable to tack on to a general examination some sort of special *vivâ voce* examination in each district before a man should be allowed to work in that district; that is to say, that he should come to any district which he wants to work in first of all with his certificate showing that he has passed the written examination, and that that should not be enough, but that if he wants to work in any district, he should pass a *vivâ voce* examination which would show that he was fairly well acquainted with the conditions of that district, or with the class of mine that was worked in that district?—I have not heard that suggested before.

4505. You think it would be enough that a man should pass the central examination, and that then he might go to any district he liked?—Yes, I think that would be enough. I do not think any further restriction should be put upon him to get his certificate.

4506. Then you think the managers of metalliferous mines should be compelled to hold certificates of competency. I suppose metalliferous mines are very different, and there would probably be a different set of examinations for different metalliferous mines?—In some respects it would be different, but in the chief matters it would be very much the same; in matters relating to safety it would be very much the same.

4507. Then it may be that you would have to have more than one examination. If a different man wanted to qualify for one particular kind of metalliferous mine he would have to have one kind of examination, and if he wanted to qualify for another kind, he would have to have another kind of examination; or do you think that would be necessary?—I have not had practical experience of all classes of metalliferous mines, but from what I know of them I should think that one certificate would be enough. I have never been in any of the Cumberland Hematite mines.

4508. You have not formed any opinion as to whether certificates granted by Colonial Governments should be accepted in this country?—No. I have not sufficient information to enable me to give an opinion on the matter.

4509-10. You add in your statement (going back to the question of accidents) that you think it is desirable that a notice should be sent to the inspector of every ignition of firedamp, whether such ignition has caused personal injury or not?—Yes.

4511. That also would be covered by the new Notice of Accidents Bill. Have you any under-sea workings?—There has been one case of under-sea workings in the Swansea district.

4512. (*Mr. F. L. Davis.*) Where is it?—At Penclawdd, Gower.

4513. Is that new?—I do not think so.

4514. (*Chairman.*) You have only one case of under-sea workings?—Only one at present.

4515. Are you satisfied that the under-sea workings

Digitized by Google

Mr. J. T. Robson.

31 Oct. 1906.

are carried on under safe conditions?—I was perfectly satisfied with the safety of this colliery. The owners are not satisfied because they had rather too much water to pump, but they pumped it all the same. It was an excessive quantity of water, but still it was perfectly safe.

4516. (*Mr. Ratcliffe Ellis.*) With reference to the question of preventing accidents from explosions, what is the explosive that is used in your district?—Several explosives.

4517. Are they gunpowder or permitted explosives?—Both. Permitted explosives are used in the dry and dusty and fiery mines, and gunpowder in the non-fiery or naked light collieries.

4518. In the two cases in which you suggested shot-firing should be prohibited between shifts, are those collieries where permitted explosives are used?—Yes.

4519. Is it not already provided that the regulations which you suggest can be made now? Section 6 of the Coal Mines Regulation Act of 1896, provides: "A Secretary of State on being satisfied that any explosive is or is likely to become dangerous may, by order, of which notice shall be given in such manner as he may direct, prohibit the use thereof in any mine, or in any class of mines, either absolutely or subject to conditions, and the provisions of the principal Act as to contraventions of general rules shall apply to contraventions of any such prohibitions." Then under that power the Explosives Orders are issued?—That is so.

4520. Then under the Explosives Order the conditions are provided under which these permitted explosives can be used?—Yes.

4521. And one of the provisions might be that they should not be used except during shifts?—Yes, that might be made a condition.

4522. So that you do not want legislation to provide for that?—Not necessarily legislation, but I think it should be provided for in some way.

4523. But it is provided for. You see now it can be provided for?—Yes, there is machinery already by which that can be provided for, I understand.

4524. Are your shots generally fired electrically?—Yes, as a rule.

4525. Have you any opinion to express as to fuses? Have you seen anything of them?—I have seen a good deal of fuses. I think electricity is by far the better plan.

4526. Are you aware of the tests which are being imposed by the Home Office for fuses?—I have no special knowledge of them. I have heard about them, but I cannot say much about them.

4527. With reference to the watering, do you say you would leave that to the management as to the extent of it?—Yes, as to the extent.

4528. Have you considered that there are some cases where watering might be very injurious to the floor of the mine?—Yes, I admit there are isolated cases where it would be injurious, but I think as a rule owners and managers tend to magnify that evil or supposed evil.

4529. Have you considered, in those cases where watering would be in the opinion of the manager injurious, whether anything could be done by way of removing the dust?—They do so; in the particular case which I have in my mind, they pay special attention to removing the dust by filling it up. But that to my mind is not a proper substitute for water. However much they may fill up dust off the roads and sides, they would still, I fancy, leave quite sufficient to carry on an explosion should one happen in the pit.

4530. Where the watering is injurious, what do you suggest should be done?—I do not suggest anything. I leave it open for science to provide something. Probably it might be got over by salt or chloride of sodium, or something of that sort.

4531. Have you considered how far it is practicable to keep dust from going down the pit?—I have seen cases where a considerable quantity of dust did go down the pit, but I have never seen any effort made at those places to prevent it.

4532. Do you think it is desirable that some effort should be made to prevent the dust going down the pit?—I think it should be prevented, but that again should be left to the people to deal with.

4533. But do you suggest that such a quantity goes down the pit as to make it necessary that attention should be called to the desirability of taking some means to keep it from going down?—Yes, I have done so myself years ago. I have called attention to the quantity of dust that went down, and asked them whether they could not try to prevent some of that. I think they may have sometimes tried to do it; but, of course, they said they could not alter their screens, and so on. There were great difficulties in the way of altering them.

4534. That would be in the direction of removing the screens?—Of sealing them up and enclosing them.

4535. You have not seen any arrangement by which the dust can be collected in a chamber?—No, I have only read that such a thing is being tried.

4536. And you think it is desirable?—That might in certain cases be very good; it would tend in the right direction.

4537. With reference to inspection by workmen, I understand you to say that that might be not altogether desirable if there is too much of it?—That is my view.

4538. That the management of the mine might become somewhat lax by reason of the feeling that they had got a clean sheet?—Just so; they might rely rather on the men's examination than on their own officials.

4539. You say that in your district, or the district where you have been, there are some places where those examinations have been frequent, and other places where they have probably not taken place at all?—That is so.

4540. Have you noticed any difference in regard to the safety of those two classes of mines?—No, not any special difference.

4541. You have not seen that there is any better discipline or greater safety in a mine which has been inspected than in mines which have not been inspected at all?—No, I cannot say that it has gone that length.

4542. With reference to discipline in your district, you say it is not quite what you think it ought to be?—Yes.

4543. What do you mean by that exactly?—I mean that there are too many cases where obviously the men do improper acts.

4544. But how has that come to your knowledge?—By investigating accidents and by visiting the mines without there being accidents, and sometimes by receiving reports of proceedings from managers.

4545. When it comes to your knowledge that there has been a breach of the Act, either by a workman or by a manager, I suppose it is competent for you to prosecute him?—I should not think it my duty to prosecute a workman, but I would prosecute a manager.

4546. I suppose you could prosecute a workman if you thought it necessary?—I do not know that I could. I never have done so; I never thought it was part of my duty. I looked to the owner, agent, and manager to establish and enforce discipline by proceedings if necessary, or at any rate by some means, but I never thought it was part of my duty to institute proceedings against anybody but one or other of those three people.

4547. Take the case of collieries where you say they neither prosecute nor fine: do you find that the discipline is worse there than in other collieries?—No; I have already said that I cannot say I have found any difference either as regards laxity of discipline or as regards more accidents happening. But still it is the fact all the same—there are collieries like that.

4548. Does it not strike you as somewhat singular that there is no want of discipline in those collieries where they neither fine nor prosecute, and there is want of discipline in the other collieries?—I must say I have nothing to lead me to think that the discipline in those places is any worse; I have no means of knowing.

4549. (*Chairman.*) I understood you to say, in reply to the question which I asked you, that there was a difference, and that you did find there was more laxity in mines where there was no fining nor prosecuting?—No, not generally. I think I was wrong if I gave that impression. There is no particular difference.

4550. (*Mr. F. L. Davis.*) I think you were talking about the discipline in this way—that the owners did not bring those men to book, but that the general condition of the mine was not any the worse?—That is

Digitized by Google

so. If you take two mines, in one case the owner or manager has instituted, say, five prosecutions in a year for offences, and in another mine alongside of it it may be they have instituted none at all. I do not know from my knowledge that the mine where there have been five prosecutions for breaches is any better or any worse than the other where there has been none; it is a thing you cannot tell. It looks rather bad having five prosecutions, and it might be said "Your discipline has been very bad," but with regard to the other mine where they have had no prosecutions, that does not prove that the discipline is good because the manager never took the trouble, or his officials never took the trouble, to find out; they never made a search, for instance, and never tried to find matches or pipes, or men sleeping with lamps.

4551. (*Mr. Ratcliffe Ellis.*) You do not, I hope, assume that it is the practice to take matches or pipes down the pits?—No, I do not assume it.

4552. Is the discipline any worse in one than the other?—You have no means of knowing; you can only judge generally. I could not give you specific instances of it.

4553. It is rather a general statement to say that the discipline is not good in your district, is it not, on the evidence that you have?—I know generally it is not good. It is better than it has been; it is always getting, perhaps, a little better; but the discipline in Swansea has during all my time been behind that in, say, some of the English counties, of which I have some knowledge.

4554. In those collieries where they do not fine or prosecute do they discharge the men?—Sometimes they do.

4555. Is it usual?—That might happen without my knowledge, but I have heard it said, "Well, we tell them we do not want to prosecute or to fine."

4556. Is the explanation given to you by the collieries in which they do not prosecute nor fine, that they discharge the men?—Sometimes—not invariably.

4557. That is one way of enforcing discipline, is it not?—It is one way.

4558. In the collieries where they do not prosecute, but where the man is fined, not by the magistrate, but by the management, is it advertised that he is fined?—No, not always.

4559. Is it sometimes?—Sometimes they submit to a notice being posted at the pit top. At other times they demur to that, and it is a thing which I have not pushed. I have not pressed them about it; I have thought that if a man is fined at a colliery, whether it is published at the pit top or not, it will soon be common knowledge and they will all know about it.

4560. Do you find that where a man is fined and not brought before the magistrates it becomes generally known that he has been fined?—It becomes generally known in the immediate locality.

4561. And it becomes known that he has consented and agreed to be fined?—Yes it follows that he has consented, of course.

4562. Is that not a satisfactory way of maintaining discipline?—Yes, it is one way. With regard to a first or perhaps a second offence I would have no objection to it.

4563. I think I understood you to say that you would not disapprove of fining for a first offence?—As a general rule.

4564. But if a man had been guilty before, you think that upon future occasions he should be brought before the magistrate?—Yes, especially if it is a very grave offence that he commits. I think it is a question of degree.

4565. With reference to the first General Rule as to ventilation, that is the rule upon which you bring employers—owners, agents, or managers—before the magistrates for inadequate ventilation?—That is so.

4566. At the beginning of these General Rules there is this provision: "The following General Rules shall be observed, so far as is reasonably practicable, in every mine"?—Yes.

4567. Even if you proved that there was a cap on a lamp, it would not exactly follow that there had been a breach of this General Rule, that so far as reasonably practicable the management should secure an adequate amount of ventilation to comply with the General Rule?—If it was a continuing thing——

Mr. J. T. Robson.

31 Oct. 1906.

4568. That is a different matter; but I want to take it, first of all, by steps. It might be quite possible that under certain conditions a cap might be found in the lamp, and yet the management might have taken all reasonably practicable means to secure an adequate amount of ventilation in the mine. The two things are quite consistent?—Yes, in a sense they are, but in a sense only.

4569. If you put it that the finding of a cap in the lamp was to be conclusive evidence that there was not an adequate amount of ventilation, then you would be in danger of unjustly fining an owner, agent, or manager?—I do not think it would have that effect at all.

4570. But that would be an effect?—Perhaps legally it would—strictly it would—but I think in practice it would not be.

4571. Will you look at General Rule 7 for a moment. Of course, General Rule 1 is a rule under which you punish people?—Yes—that is to say, you try to, but you frequently fail.

4572. As I have said before, you cannot have Special Rules for magistrates; they must have a little discretion in these matters. General Rule 7 is a rule which is for the protection of the men—the object of that rule is their protection?—Yes.

4573. Under that rule the men have to be removed where there is a dangerous accumulation of gas. The words are: "If at any time it is found by the persons for the time being in charge of the mine, or any part thereof, that by reason of inflammable gases prevailing in the mine, or that part thereof, or of any cause whatever, the mine or that part is dangerous, every workman shall be withdrawn." Would it meet your views, if you wish to have some standard of ventilation, that General Rule 1 should remain as it is, but that Rule 7 should be stiffened up a little as to the circumstances under which the men should withdraw?—I do suggest that that rule requires some slight amendment.

4574. The men's safety would be secured if you provided that they should be withdrawn when a cap was found in a lamp?—I think that is my meaning—that the men should be withdrawn, except for the purpose of remedying the defect, I think I said.

4575. Would it not meet your views if General Rule 1 was left as it is, but that in General Rule 7, the conditions under which the men should be withdrawn should be a little more clearly defined?—Yes.

4576. Then there is another difficulty, is there not, that if you take General Rule 1, and begin begin to alter that by putting the test as being a cap in the lamp, you might have a state of things where there was no gas at all, but where there was very inadequate ventilation?—Yes, I would provide against that in some other way; in naked light collieries I think I would have it provided that it was not satisfactory if a candle would not burn upright.

4577. I am dealing now with General Rule 1 again. If you began to alter it at all you would have to alter it a great deal. That is the Rule for punishment?—Yes.

4578. I quite agree with you that as much as possible must be left to the management. General Rule 1 requires the management to keep the mine in a fit state for working and passing. It provides that there must be such an amount of ventilation as to dilute and render harmless noxious gases to such an extent that the working places of the shafts, levels, stables, and workings of the mine, and the travelling roads to and from those working places, should be in a fit state for working and passing therein. If that is complied with that is all you want?—That is so, but it is the difficulty of getting that state of things fixed—it is the difference of opinion.

4579. I suggest to you that you should leave it to the Magistrates to decide in each particular case whether the employer had done what was practicable to secure ventilation, and that if they thought he had not, they would fine him; but when you come to General Rule 7, where the safety of the men is concerned and it is not a question simply of punishing the employer, that then you should provide a little more in detail as to the conditions under which the men should be brought out. Do you agree with that?—I

Digitized by Google

Mr. J. T. Robson. 31 Oct. 1906.

see the force of that. So long as the thing was done I would not mind which Rule it was put into; but it wants strengthening in some way.

4580. You think there is a little reason in that?—Yes, there is a great deal to be said for your point of view, I quite admit.

4581. You said you had great difficulty in regard to the introduction of safety lamps. What steps have you taken to get them introduced?—I have frequently asked people to do it—both the men and the masters and managers, especially the latter.

4582. Of course under General Rule 8, if a state of things existed such as is defined in General Rule 8, you would be entitled to compel the use of safety lamps?—Yes, but it is outside of Rule 8, in cases where you could not apply that Rule at all, where they simply have a little gas and get men burnt continually. Those are the cases in which the difficulty exists as to getting in lamps.

4583. (*Mr. Cunynghame.*) I do not quite understand that, because the Rule says, "In any place in a mine in which there is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous." Where a man is burnt is not that a clear indication that the use of naked lights in that part is dangerous?—Well, it has not been.

4584. (*Mr. Ratcliffe Ellis.*) You have not endeavoured to put that Rule into fore, I suppose?—I have not proceeded against anybody for breach of that Rule for a long time, but I know perfectly well that I should lose if I had. I have tried by talking more than by prosecution; I do not altogether believe in prosecutions.

4585. Do you suggest to the Commission that there have been cases where, at any rate in your view, the use of naked lights is dangerous?—Yes, in my view dangerous.

4586. Why have you not taken proceedings in such cases?—Because I think I would lose, and then it would be worse than ever, and, moreover, we should get laughed at.

4587. But you did not try that?—I have tried everything, perhaps, short of proceedings in many cases, and I have been successful in a large number in getting lamps introduced. I think probably every year there have been one or two collieries that have put on lamps, at my instigation chiefly.

4588. When you have been successful it has been by peaceful persuasion?—Yes, but I think the longer I went on the more I saw that I could do good in that way.

4589. You have never failed in a case in which you had endeavoured to enforce it?—No, I do not think I have failed.

4590. Then, as I understand, your view is that wherever safety lamps are introduced at all, they should never be taken out?—I think in 999 cases out of 1,000 they would not be, or even a larger proportion.

4591. With regard to the question of falls of roof, the present Regulation is that the manager must fix the distance from the face?—That is the newest Rule. That does not alter the law upon the matter; the place must be made secure.

4592. It is the law, because those Special Rules are part of the Act of Parliament?—Yes, but it does not take away the effect of Rule 21, I take it.

4593. It does not at all, but this is carrying out Rule 21?—Just so; it is carrying it into more detail, and it appears to me that the more you do that the worse off you get.

4594. On the whole you prefer Rule 21?—Yes.

4595. With reference to the making of Special Rules, there is a difficulty now, is there not, in the establishment of Special Rules by the Home Office, that they must do it for each colliery—each mine?—Yes, each mine. They are bound to do it, according to the law, for each separate mine.

4596. And at the present time the Home Office cannot propose rules to apply to a district?—They take one mine as a type and get the management of that mine to agree to adopt the Special Rules generally.

4597. But I am dealing with the Act of Parliament; at the present time the Special Rules have to be proposed for each colliery?—Yes.

4598. And each colliery could have an arbitration?—Yes.

4599. That is inconvenient?—Yes.

4600. Do you think it would be convenient if the Home Office could propose a Rule or Rules to apply to all collieries in a district?—Yes.

4601. And that then having proposed that Rule, any colliery owner in the district might have a right to object, either generally to the Rule, or to say that it should not apply to his particular colliery?—Yes.

4602. And that any person who might be considered by the Home Office to be affected, should also be entitled to object? That would give an opportunity to the workmen to object also?—Yes, there could not be anybody else—the owners and the workmen are the people.

4603. Both would be entitled to object?—Yes, I think so.

4604. At the present time when a Rule is proposed by the Home Office I suppose both could object?—Both could object now, I suppose.

4605. However, if it was made a statutory right that any person interested could object, your views, I suppose, would be satisfied—the workmen would then be able to object to the establishment of such a Rule?—Yes, and the matter would have to be discussed.

4606. (*Mr. Smillie.*) I took it rather that the witness meant that the workmen and the employer should be called in before the Rule was suggested.

4607. (*Mr. Ratcliffe Ellis.*) That was his view, but I am suggesting to him now another system for the Home Office. Then that the Home Office, having proposed a Rule, and advertised it, should receive objections; you agree, I suppose, that those objections should be considered by some authority outside both the Home Office, and the employers or the workmen?—The objections?

4608. Yes—you suggested arbitration?—I say that if in the attempt to establish Rules the owners, the men and the Inspector together could not agree, I could not see any other way but arbitration. I do not think it is right to leave it to the Secretary of State then.

4609. Then we agree that there should be arbitration. I suggest to you that difficulties might arise there; you have got every individual workman to deal with, and every individual colliery?—Yes.

4610. If each wanted to appoint an Arbitrator there would be great difficulty in selecting one, but supposing the Home Office had the right to nominate an Arbitrator, subject to his being objected to by the employers or the workmen, and leaving a Judge of the High Court to decide whether such Arbitrator should be appointed or not in accordance with the Arbitration Act of 1889, do you think that would be a better system than the one in force under the Act of Parliament now?—I think that would be less cumbersome.

4611. That is where a rule is proposed by the Home Office, but in a case where a colliery owner wishes to alter a rule affecting his pit, why should he not be at liberty to make the suggestion to the Home Office, if he thinks fit, without inviting the advice of the men on the subject?—I think it cuts both ways. I think the men should have a say in any case, whoever proposes the rule.

4612. But the men would have a say when the Home Office decided whether they would accept that rule or propose another or what course they would take about it; they could invite your assistance or invite the men's views about it?—But the men would have to be told about it first; there would have to be some means of showing to the men that there was a proposition to alter a rule.

4613. It would have to be advertised, and then if the men chose to object they could object to it?—Yes, they have the power to object now when the rule is posted; but I say it has gone rather too far then.

4614. Why should it be more than that?—A colliery owner has to make rules for the safety and discipline of his mine?—True.

4615. Why should he not suggest rules as he thinks fit, subject to an objection to be made by the men?—There is no reason why he should not. Colliery owners

Digitized by Google

should be encouraged to make rules if they like—to make the state of things better.

4616. What I want to ask is this—whether, as these rules are for the management of the mine, the owners should be prohibited from making a rule until they have invited the workmen engaged at the colliery to consider it?—Yes, I think they should, because they might introduce something that was detrimental to the men.

4617. But would you prevent a coalowner suggesting to the Home Office a rule unless he first invited the men employed at his colliery to come and discuss it with him?—I would not prevent him, but I think there should be machinery for allowing the men to be made conversant with the proposed new rules or alteration.

4618. They are, by advertising them?—I do not suggest in what way it should be done, but I say as a principle they ought to be taken into consideration.

4619. But I should like to go a little further than that. I understand now you do not suggest that an owner should not be entitled to propose a rule?—Oh, dear no. I think it is rather the other way, that colliery owners should be encouraged to propose rules, if they can get them passed.

4620. And that a colliery owner should be entitled to propose a rule without inviting his men to consider with him whether it is a good or bad rule in the first instance?—Well, somebody has to initiate the thing, the owner or the manager; but it should be made public.

4621. I agree; but then if it is advertised in the manner required by the Act of Parliament the men have a right to object. Does not that meet your views?—Not exactly, not if it is hurried through; the men do not see the notices.

4622. The question of the haste with which it is gone through is entirely a different matter. The point is this: Is the coalowner to be allowed to propose a rule, or is he not to be allowed to propose a rule until he has taken his men into consultation with him as to the desirability of such rule being proposed?—He does the two at the same time; he thinks of a rule and he proposes it, and he at once invites the men and the inspector in a conference to discuss it.

4623. Do you say that a coalowner should not be entitled to propose a rule until he has invited the opinion of the men and of the inspector upon it, or do you agree that he should propose rules as often as he likes, providing they are advertised, and that the workmen and the inspector have an opportunity of objecting?—I do not quite know what you mean by "advertised."

4624. If you look at Section 51 of the Act you will see what the advertising is. I want to know from you whether you would prohibit an employer sending a rule to the Home Office until he has taken his men and the inspectors into consultation as to whether it is a good or bad rule?—I do not know that I would prohibit him, but I think there should be machinery to be put in motion which would bring the three parties together. I think those are the three parties who should discuss the rule.

4625. If you say that the owner is not to be allowed to propose a rule unless he has in the first place taken his men and the inspector into consultation, when he invites his men to consider it and the men do not agree with him what is to happen?—I do not quite go so far as to say he should not propose a rule, but it should not go beyond a certain stage.

4626-8. We are getting nearer together. Then you would not object to the owner proposing the rule?—No, but I shall have to answer that question by asking another question, What does he propose, and whom does he propose it to?

4629. To whom is he to propose it?—That is just it. Why can he not take his men into his confidence, and the inspector? They are all together in the district; they ought to discuss it.

4630. He ought to please himself; that is my point. My suggestion is that he should propose the rule to the Home Office. Can you suggest someone else that he should propose it to, and then take the opinion of the men and of the inspector on the subject?—I am afraid I cannot carry it much further, but there is not much in it, I think.

4631. With reference to ambulance work, would you make it a condition that before a man should sit for his examination he should have an ambulance certificate?—I do not think so.

4632. You only suggest that it ought to be encouraged, but not made obligatory?—Yes, encouraged; but I think it is carrying it rather too far to suggest that he should have a certificate for ambulance.

4633. (*Mr. Enoch Edwards.*) You were asked by his Lordship in the early part of your evidence whether the staff of inspectors you had in your time was sufficient for the district you were in?—Yes.

4634. I understood you to say that you thought they were equal to the duties?—Yes, I thought so.

4635. How often could you and your staff inspect the collieries in one year? You make an inspection of every mine once a year?—As a rule, there would be at least one inspection of every mine, but not necessarily of the whole mine, during each year.

4636. By inspection you mean underground inspection?—Yes, underground inspection.

4637. In your judgment, is one inspection a year sufficient for the collieries?—Well, I am not in favour of one inspection in a year exactly. I think it should be left more to the inspector to inspect as he thinks fit. In practice, many mines require far more than one inspection; other mines may not require even one. I do not think it should be regulated by a number of inspections.

4638. Inspections are necessary?—Inspections are necessary from time to time, but I think it is wrong in principle to say that a pit should be inspected once in so many months, or something of that sort. I think it is far better to leave it optional, but in respect to certain mines as often as is found necessary, and to leave the others where inspection is not so necessary; I mean to say not so frequent, not necessarily so frequent.

4639. Inspection is necessary?—Inspection is necessary, yes; but there should not be a limit. There should not be an understanding, as it were, that mines should be inspected once at least every year; I think that that is wrong in principle.

4640. I suppose we are right in assuming that inspectors are wanted by the State for the purpose of inspecting?—Yes, they do inspect; but you see what I mean. An inspector in his district knows from his own knowledge that certain mines, or a group of mines, require far more looking after, as it were, to keep them up to the mark, and if you make it a rule that you should inspect a mine every year, then it occupies the inspector's time, and it may be to the exclusion of other collieries where they would be better employed.

4641. I am not suggesting that you should inspect a mine every year. If I did suggest, I should suggest inspecting a mine once a year is not sufficient inspection?—In a great many cases it is far from sufficient.

4642. You were asked your opinion about workmen's inspections. I suppose we may take it generally that the clause or provision of the law has not been operative in any district to any great extent?—As far as my experience goes, it has not been operative to so great an extent as is desirable.

4643. I think you said when workmen inspected a colliery they may select for that purpose a man from another colliery?—They may legally.

4644. You have known cases where employers have objected, on the ground that it was a stranger?—In two cases; in two collieries quite recently, and that was put right.

4645. It has been suggested during the inquiry, so far, that one of the reasons has been the men's inability to provide funds? Do you know anything about that?—I have never heard them say that it was inability to provide funds, but I have heard it said that the cost, which comes pretty much to the same thing, was rather against them putting it into force.

4646. They had no funds for that purpose?—They either had no funds for that purpose or they thought that the cost was rather too much to incur for the object. They preferred to leave it as it was.

4647. I think you suggested you thought the men ought to pay for this?—Certainly; if it is to be any good at all the men should pay for it.

4648. What are your reasons for thinking the work-

Digitized by Google

Mr. J. T. Robson.

31 Oct. 1906.

men should pay for inspection of the mine?—It is on their own behalf. The mines are inspected and carried on by a class of officials, and above that there is a certain amount of Government inspection, and then again comes in the option they have of inspecting on their own behalf. If it is to be on their own behalf, and to be useful and independent, then clearly the men should pay for it. At least, that is my view.

4649. It is not laid down in other industries that workmen should pay for inspection?—It is only for a particular kind of inspection. They should certainly not pay for part of the official inspection. They pay for it in a way indirectly, as everybody else does; it is public money that is spent.

4650. You have some knowledge of this. The main reason why it has broken down is because there are no funds available for that purpose?—I do not know that is so. I know that in every colliery there are funds of some sort, but whether they require special power to expend money for inspection or not I do not know.

4651. So far as you know, there are no funds available for the purpose?—I have heard it said that they object to the cost of it, and they prefer to leave it as it is, and trust to the official inspections.

4652. You were asked your opinion why certain companies did not prosecute the workmen. I gathered first of all his Lordship suggested to you a comparison, that certain districts had so many prosecutions, which were very largely in excess of the prosecutions in your district?—Yes.

4653. Will you admit that as evidence, that where there are more prosecutions there is greater discipline?—I do not think it follows because there are more prosecutions there is greater discipline in one district than another, but there is evidently an attempt at enforcing discipline more where there are more prosecutions. There are more people who feel the necessity of doing something.

4654. Is it at all within your knowledge that there are collieries where, on account of the ordinary method of management and discipline, there is no such breach of rules which calls for these prosecutions?—I should say in every colliery of any appreciable extent that there are always some breaches of the rules that could be ascertained if they lay themselves out for it, but in many cases they do not.

4655. That would apply, I suppose, both to the workmen and the employers?—Yes, but chiefly to the workmen, because there are so many more workmen than employers.

4656. I understood personally you were opposed to the method of fining men—that is, fining them in the colliery office?—I am not exactly opposed to it. I have said, I think, already, in the first instance I would be inclined to allow a fine rather than take a man before the magistrates, but if that same man repeats offences, then I think something more should be done.

4657. By the same rule, you would take the manager before the magistrate?—I frequently refrained from taking them before the magistrates, but gave them a good talking to, and I think that has a very good effect. If I had wanted, I could have had prosecutions every month, but, as you have seen, I had very few. I think I did more good by talking to them than by prosecuting them. Now and then I was obliged to prosecute.

4658. Did you ever in any case impose a fine on them?—No; I had no power to do so.

4659. You had no power?—No; I would never think of it. It was a case of talking to them, and getting them to promise that they would not commit an offence again, improve matters, and so the matter ended.

4660. I suppose we may take it it is part of the duties of a Government inspector to enforce discipline on the management?—Yes.

4661. It is the business of the management to enforce discipline on the men?—That is so.

4662. Have you had any difficulty in enforcing discipline on the management?—Yes, difficulties creep in ocasionally.

4663. Have you found the present law strong enough to enable you to enforce what you believe to be the right thing on the management?—As a general rule, I should say "Yes," but there are cases where the law is not quite strong enough.

4664. Suppose we take a case; you have a colliery in the district of your inspectorate where complaint has been made to you that there are small explosions of gas and they use candles?—Yes.

4665. You caution the management that it is desirable to put in lamps?—I have many a time.

4666. In collieries where there have been small explosions?—Yes.

4667. Have you ever had a case where they disregarded your advice and then had an explosion and killed 18 or 20 men?—Never as bad as that, unless you go back nine or ten years, I think there was a case.

4668. Shall we call your attention to the inquiry?—Nine or ten years ago, not in recent years.

4669. I am thinking of the Llest explosion?—The Llest is the last case where I remember any such thing happening. That was about 1896 or 1897.

4670. I think you stated there that you had repeatedly warned these people?—Yes, I had tried to get in lamps and I failed, and unfortunately it never went further than the management, if I recollect rightly; that is to say, the letter, instead of being received by the owner to whom it was addressed, or a company in that case, was received by the manager, who dealt with it, and the owners afterwards said "We knew nothing about it; we never heard any recommendation from you that you suggested lamps."

4671. That is seven years ago?—Yes.

4672. I have the report, and it is dated 1899. Had you any power at the time to enforce lamps at that colliery?—I would have the same power at that time as I have at the present moment—that is, I suppose, by trying a case, prosecuting under the 8th rule; but I think I would most certainly have lost it, because the opposition would have been so strong. There would have been 20 people brought forward to tell the magistrates that it was not necessary for one I could produce.

4673. They would not have done that after the explosion?—That was a different thing altogether after the explosion.

4674. In face of these explosions would they do it now, do you think?—In another colliery very near to that one I had one or two what I would call minor explosions, but still it was the thin end of the wedge. There were one or two men injured badly, in one case a man died, and I tried hard to get lamps there, but the men and masters were against it.

4675. I am putting these questions from my knowledge and experience. Both men and employers were opposed to it?—They were.

4676. It does not follow that we should shut our eyes to the importance of it even although the workmen and employers are against it?—Certainly not.

4677. I think I gather, in your judgment, had there been lamps at the time in that colliery, there would have been no explosion?—Certainly.

4678. If the law is not strong enough now to enforce the judgment and experience of an inspector, you think it ought to be strengthened?—It ought to be strengthened.

4679. If you as an inspector are satisfied that there is serious risk and danger to the men, you ought to have power to step in and stop it?—There ought to be some power to compel owners and the workmen too to take a more reasonable view of the thing.

4680. In dealing with the question of watering and the construction of wagons, I think what his Lordship was trying to suggest to you was that wagons should be closed at the top. I think you hardly followed about the closed top, enclosed all round rather?—I did not quite grasp that was the intention. I have never had that seriously put forward.

4681. You have a lot of collieries where the wagons are left open at one end?—Not a very great many; they are getting less and less every year, but still there are several in very important collieries.

4682. Is that in low working places?—No, in some of the biggish collieries; but it is the system in vogue, and they say it is a great convenience for stowing

Digitized by Google

rubbish at night, taking in rubbish to the face. Pulling the end out is an easy process of doing it.

4683. You said that you had only one colliery working under the Sea?—Only one.

4684. Have you many collieries working in the neighbourhood of water from old working?—No, not many. There are, of course, always some cases cropping up where the workings of a comparatively new colliery are approaching an abandoned colliery, and then it becomes a serious question as to approaching and as to the necessity or otherwise for boring.

4685. Having regard to the fact that many of these old plans are so inaccurate and uncertain, do you think that the law is strong enough now where provision is made for boring?—It all depends how you read the rule; the rule is rather clumsily worded. I cannot say that I have had any difficulty in getting it enforced in a reasonable manner.

4686. Will you take the rule as it is now? From your general knowledge you know that there have been serious disasters through the inundation of mines?—There have been.

4687. The explanation of the management has been that they were carrying the bore hole according to law, but that the old plans must have been faulty?—That was not the fault of the boring rule; it was the fault of the defective plans, I think.

4688. In face of this difficulty which has arisen, do you think that this boring should not be carried on to a greater extent than it is now where you apprehend danger?—There might possibly be something more added to the rule to make it a little more elastic. I think it could be improved, but still, if you are certain the plan is right and you are certain you are within 40 yards of a place, I do not see myself that it is necessary to bore. I think it is throwing money away. Forty yards of solid coal is enough to prevent any water bursting in.

4689. You have nothing to suggest to provide against this danger?—I have nothing particular to suggest. I think that the rule is not drafted so well as it might be. It is liable to misconstruction, but still it has worked fairly well. I cannot call to mind any case where the failure of the rule or the interpretation of the rule has led to any loss of life, but I do know of cases where inaccurate plans have led to loss of life.

4690. (*Chairman.*) I should like to ask you about prosecutions. I understand that it is in your power to prosecute owners or managers of mines for dereliction of duty in not prosecuting the men?—That is so.

4691. You have never made use of that power?—To prosecute owners?

4692. The power to prosecute owners for not prosecuting men. Supposing you found in a mine men had been guilty of very culpable negligence which endangered the lives of their fellow-workers, and you remonstrated with the owners, and they refused to bear the cost of prosecution in such cases as that, would not you consider it your duty to prosecute them for dereliction of duty in not prosecuting the men for that kind of offence?—It may be considered a duty, and I have frequently pointed out unless owners and managers do enforce the rules reasonably, then in the event of any contravention being discovered I would be obliged to take proceedings against them, and in order to avoid proceedings being taken against them it would be better for them to endeavour to enforce the rules.

4693. My point rather is whether you would not consider it your duty to go further than that; after warning the owners or managers that it is their duty, in your opinion, to prosecute men for certain offences greatly endangering the lives of their fellow-men, in the event of the mine owners and managers still refusing to prosecute, and in the event of it coming to your knowledge that although there had been no prosecutions the men had been guilty of such conduct, would not you consider that it was your duty to prosecute the owners and managers of that mine?—I am afraid I could hardly institute proceedings unless I had a specific case, and I cannot call to mind any specific case where I failed to take proceedings under these circumstances. The mere fact that they do not take steps to enforce the rules would hardly give me ground to proceed against them. I would require a specific breach on their part, and I might use it as evidence. They might say, "We did everything we could; we posted the rules up, we had a manager"; but I would say, "You never proceeded against anybody to try to stop this breach." It has not gone that length, but I have often threatened it.

4694. You have often threatened it, but you have never carried it into execution?—I have said often in conversation and sometimes in a letter, that I would be obliged to take steps unless they did something; but I do not think that it has ever gone the length of taking proceedings.

4695. Supposing you found from a list of fines which you looked over that the men had been fined for offences which in your opinion it was clearly the duty of the owner or manager to prosecute them for, would not it have been your duty to have prosecuted the owner or manager if he persistently disregarded your injunctions and went on fining men when he ought to prosecute them, or not taking any notice of their conduct when he ought to prosecute them?—I do not know how that would be. If I find while inspecting the pit certain breaches, irregularities, habitually, and in that particular pit I have been telling them, "Why do not you do something?" and they say we are continually fining the men for not setting sprags, but they never prosecute, then I would have some ground. You must have a specific case.

4696. My point is this: Supposing you looked over a list of fines in a mine where they had fines and discovered that certain offences were dealt with by fines which clearly ought to have been dealt with by prosecutions, and you warned the owner and manager, and said, "In future you must deal with cases of this kind by prosecution and not by fines," and suppose the next time you found they still persisted in fining for exactly that class of offence, should you not think in a case of that kind it would be the duty of a mine inspector to prosecute the owner or manager?—With deference, I would not have that information. I would not have any list of fines. There is no provision for any list of fines.

4697. Do you not inspect the list of fines and see what the offences are?—Now and then I come across cases where they have been fined, but there is no such thing that I know of as a list of fines, nor are they compelled to report to me in a case of fining the men. They are bound by law to report a case of proceedings.

(*Mr. F. L. Davis.*) They are not compelled to report to the inspector, but he has the power to inspect.

4698. (*Chairman.*) You have power to inspect the list of fines?—I have no idea of any list of fines.

4699. (*Mr. Ratcliffe Ellis.*) Under the Mines Act there is express provision where a person is fined by the magistrate that they must report it to the inspector?—That is in the case of a prosecution.

4700. (*Chairman.*) I mean fines agreed upon between the masters and men. Is there not a list? Surely there is a list of fines where fines are agreed upon?—There is no provision for reporting to the inspector.

4701. (*Mr. Wm. Abraham.*) Is there any means of your knowing whether any fine has been made at all?—No.

4702. (*Mr. Ratcliffe Ellis.*) By the Truck Act of 1896 all fines must be recorded and open to the inspector. However, we have had evidence about that.

4703. (*Mr. Wm. Abraham.*) In South Wales I think he will tell you it has not been the custom to fine men?—It is very little practised indeed, and there are certainly very few cases brought to my knowledge where men have been fined, and there is no such thing as a list of fines.

4704. (*Chairman.*) I am supposing that such a state of things existed that you are able to clearly prove and see for yourself that the owner had not prosecuted his men when, in your opinion, it was clearly his duty to do so. Then, as I understand the duties of the inspector, it would be your duty to prosecute the owner for the offence of not prosecuting his men?—I think I should have to wait for some offence to be committed by the owner or manager and then make use of that as evidence, if I could get it in, why he should be convicted, that he had not taken reasonable means of enforcing the rules. That I take to include prosecuting occasionally, if it is required. I could not go further than that.

4705. (*Mr. Cunynghame.*) I suppose in practice what it comes to is this, that owners would frequently in your

Digitized by Google

Mr. J. T. Robson.

31 Oct. 1906.

district, and very likely in others—more so in others perhaps—fine a man instead of prosecuting him?—I know they do in other districts.

4706. They do not do it very much in yours?—Very little in my district, but I know it is done from reading the reports in the southern district.

4707. The fining power would be used (I am not saying rightly or wrongly) by the owner instead of prosecuting?—Yes, precisely.

4708. In some cases he might be using the power of fining where it would be more proper to prosecute?—He might be.

4709. (*Mr. Wm. Abraham.*) I wish this Commission to understand that the duty of the inspector is to inspect the mines, and we have found out that the inspectors consider that they need not go to some mines more than once a year. Unless the inspector is informed from the office of these fines the owners or managers may go on for twelve months or two years fining men for offences that the inspector would condemn, but he does not know of them?—That is so.

(*Mr. Wm. Abraham.*) It appears to me that this Truck Act is allowed to override the Mines Act and reduce the safety of the mine as well as the safety of the lives of the men.

(*Mr Ratcliffe Ellis.*) The Truck Act does not authorise any fine unless the man agrees.

(*Mr. Wm. Abraham.*) I know that, and we have had it that men rather agree to be fined £1 than to go before a magistrate. That is what we condemn in the Truck Act.

4710. (*Mr. Cunynghame.*) I wanted to ask you a little more about safety lamps. Your view is that whenever firedamp is found in a mine there should be safety lamps. Then if any lamp shows a distinct cap it should be taken as an indication that firedamp is present?—It should be taken as an indication of insufficient ventilation.

4711. You would not say when any lamp showed a distinct cap safety lamps should be ever after used, or did you mean that?—Wherever firedamp has been found, that would be in the majority of cases where a man has been burned by a small accumulation of gas.

4712. Will you take the question I am putting to you first? The point was this: Would you say that wherever firedamp has been found in a mine the mine shall always thenceforth be worked with safety lamps?—That is my opinion.

4713. Do you mean by that a quantity of firedamp reasonably sufficient to be dangerous, or did you mean any minute trace at all?—I do not mean any minute trace. I mean firedamp as it would be understood by mining people. Wherever you find firedamp, that would be in practice where you find sufficient to burn a man.

4714. Can you suggest any way of putting that down in a rule? If you put down "Wherever firedamp is found" the magistrate is bound to interpret that to mean firedamp in any quantity whatever. Your proposed rule is, wherever firedamp is found, that this is to be done. That would oblige the magistrate in every case to declare, however small the firedamp was?—It would not be a bad thing.

4715. I want to know how far you go?—Already the magistrates have been found to refuse to convict where a man was burned.

4716-8. I am not asking what magistrates do. Would they not be bound to decide in the way I mentioned?—If you put in the rule "Wherever firedamp has been found," would it not compel a magistrate to say the safety lamp would have to be used, even although the firedamp were of an infinitesimal quantity? I am not disagreeing with the substance of your proposal, but with the mode of getting at it? Such a result might be a very good thing. The trouble begins with a minute amount, and the chances are that in a very short time there will be more than an infinitesimal quantity.

4719. You go as far as to say wherever firedamp is found in any infinitesimal quantity, however, infinitesimal, the mine thenceforth ought always to be worked with safety lamps?—That is what I mean. I say whenever you get firedamp you must put in lamps.

4720. Do you mean firedamp of infinitesimal quantity?—If you like to put it that way. I want to get rid of these terms, such as "indicative of danger," and other terms that have been introduced, and which you can ride a coach and four through. You had better keep to general terms. If you say in mines broadly where firedamp has been found I think it will be right.

4721. Is it not the use of these general terms in the present law, "in such quantity as to make the use of naked lights dangerous," which has led to the present difficulties? Do you not propose general terms which are ambiguous?—I do not think "wherever firedamp is found" is ambiguous. That is as plain as language can make it.

4722-9. I think, as a lawyer, it leads to results which you do not wish to bring about?—I do not think so, because wherever you get fire damp you may depend upon it in a very short time you will get more.

4730. Now you say it would be a good thing that there should be testing stations about the country, but they should be testing stations of private owners, apparently?—I think it would be better.

4731. Is it not wise that these stations should be made according to some approved methods? There might be bad ones and good ones—ones badly contrived altogether?—That may be so. It does not follow that an official one would be the best one. I rather think it is not always.

4732. There might be bad ones, anyhow?—There might be.

4733. If there were bad ones, they would become sources of danger rather than of safety?—Yes, but I think I would leave it to the owners and managers to find out. I think they would have a better chance of finding out what was good and what was bad, if not confined to one particular place. I think that would be better than an official one, which they would be compelled to go to.

4734. I understand you to say you would only prohibit the Davy lamp, and no other?—At present I would prohibit the Davy lamp; that is the lamp that is being used to a small extent.

4735. Are there not many lamps dangerous besides the Davy lamp?—Not in use, to my knowledge.

4736. Are there not in existence lamps dangerous besides the Davy lamp?—Not to my knowledge.

4737. Do you not consider the Mueseler lamp a not very successful affair?—It is not, perhaps, the best lamp; but I would not prohibit a Mueseler lamp.

4738. Are you discontented with the Mueseler lamp?—I have never recommended a Mueseler lamp.

4739. Would you agree with me in saying that lamp should be forbidden?—I would hardly go so far as to say that, but there are other lamps I prefer to it.

4740-54. If you prohibit a Davy lamp only, it would be equivalent pretty nearly by implication to saying others were safe?—Not necessarily, I think.

4755. With regard to the revision of mines, you are inclined to think that, among what may be called the more dangerous class of mines, there are some more distinctly dangerous than others?—I should say so.

4756. Can you suggest any practical way in which we could mark off the more dangerous mines, say, in your district?—I think the inspector can do that in any district.

4757. Would not the inspector perhaps feel that he was obliged to say, "This is dangerous" or "This is safe" when he had a mine very near the margin? The responsibility would be considerable, and he would hardly like to take it. I say that because I have heard it suggested?—I see the point, but I think the inspector should accept the responsibility.

4758. You think the inspector may accept that?—I think so. He has to accept a lot, and I think he should accept that, too.

4759. Do you think it would be desirable in cases where the owners, and even the men too, did not agree with the inspector, that there should be some reference by way of settling it?—That is a different matter if you come to a case of disagreement. I do not say that the inspector's word should be absolute by any means, because an inspector is liable to err as well as any

Digitized by Google

man. As a general rule, the inspector would be qualified to decide.

4760. You mean in cases of great doubt that there should be some method of reference?—By all means.

4761. With regard to the shelters for check-weighers, would you agree with me that a shelter for a check-weigher ought to be a place where there is not merely an absolute cover from the weather, but where he would be able to do his work in reasonable comfort. Would you say that was a reasonable provision?—I think the shelter for the check-weigher should be as good as the shelter for the master's weigher.

4762. And that he ought to be able to do his work in reasonable comfort?—Certainly, I have always said so.

4763. Now with regard to the amount of dust that would cause an explosion. Quite a small amount of dust, if it is really tremendously stirred up will create an explosion?—That is my opinion.

4764. Even in the length of not much more than across this room, some 20 lbs. of dust would be enough to carry on within that limit an explosion?—Yes, and it is because of my belief of the small quantity being dangerous that I suggest that there should be such thorough watering at any rate over a certain distance, which I would leave to the management, but that should be so thorough that there will be absolutely no dust there at all.

4765. At the same time, if the management were not to take sufficient intervals, the Inspector ought to have some power to say something to them?—That is a matter of detail.

4766. A rather important detail, too, I think?—I think he would not have much difficulty if there was once legislation as to watering. I think it would soon find its proper level.

4767. (*Mr. Wm. Abraham.*) Have you any power at all to prosecute the owners or workmen without first acquainting the Home Office, and getting your power from there?—I do not think I have any power to prosecute workmen; at least, I do not think it is intended; but I certainly have power to prosecute owners, agents, or managers, without the consent of the Secretary of State, or anybody else; as a matter of practice the consent of the Secretary or State is always obtained, but that is purely a departmental arrangement.

4768. Have you done so on your own initiative in any case without first getting consent from the Home Office?—Never, I have always obeyed my instructions, which are quite apart from the Act of Parliament as you know.

4769. You do not remember giving that as a reason why certain prosecutions were not taken?—No.

4770. Have you always got from the Home Office authority to prosecute in each case that you have sent up where in your opinion there should be a prosecution?—I would not like to answer that offhand. I think as a general rule I have always had authority. I would not like to say that there has been a single case where it has been refused.

4771. Let us come to it then direct. Has it been understood by you that it would be hardly wise for you to undertake a prosecution without receiving the consent of the Home Office?—Acting on the instructions, I have invariably reported cases to the Home Office. I have never, as I told you, instituted proceedings without the sanction of the Home Office, or the Secretary of State. I think I have never been refused, or I might say hardly ever.

4772-3. You are of the opinion that if safety lamps had been put in at Llest in proper time that explosion would not have taken place?—I think not.

4774. That is to say, if your own instructions had been carried out?—Yes.

4775. It comes to this, in fact, in an important case like that the Inspector has no power himself to order safety-lamps to be used at any mine?—That is the practical effect of it. He has no power practically.

4776. Did you acquaint the Home Office in that case with your recommendation to the company?—Afterwards, I do not think I did before. After the occurrence, which would be reported, it was embodied in the report, not before. That is not by any means an isolated case.

4777. You felt it most important in order to avoid what you were afraid of happening at Llest, to give that recommendation to the manager to use safety-lamps?—Not only to the manager, but to the owner. Unfortunately the recommendation never reached the owner.

4778. Do you know they refused to carry out your recommendation?—I knew afterwards.

4779. And still you admit that you did not acquaint the Home Office of their disobedience?—No, I did not until after the event.

4780. (*Mr. Cunynghame.*) I must remind him that not less than a month occurred between the time he made the recommendation and the occurrence of the explosion. It was not as if they carried on for years?—It was not a question of years; it was a comparatively short time. It was a mine very quickly developing, and it was just getting very quickly, as it might be, into the danger zone. For many years it had been worked comparatively safely with the naked lights, but they started a new seam, and at the first go off it was all right, but it very quickly changed, and there were two or three inspections made rapidly, and at each of these inspections it was found that the place was getting just to the stage where it would be better to have safety-lamps, and it was put before them I think in two instances, and then the explosion happened. It was not a case of years, it was a case of months.

4781. Was it the first time you had it in your mind when you wrote to recommend the use of safety-lamps?—Yes, that was the first time it was in my mind that it was necessary to make the change when I asked them whether it would not be better that they should use safety lamps. I think probably it would be in these words—"I think it is necessary in the interests of safety that you should change from naked lights to safety lamps"—or words to that effect, that I wrote to the company.

4782. You had that conversation before you wrote to the Company?—I had an inspection made of the workings, and acting upon that I thought the time had arrived when they should change to safety-lamps.

4783. After that you wrote to the Company?—Yes, after that I wrote to the Company, and after that again the explosion happened.

4784. When you wrote to the Company you were conscious that that explosion might happen any day?—I did not think an explosion was imminent, but I certainly thought that it was a case where there was some likelihood of danger from the use of naked lights, and therefore I wanted them to put in safety-lamps.

4785. You wanted them to be put in at once?—Certainly, at once.

4786. They were not put in?—They were not put in.

4787. And you did not acquaint the Home Office?—I did not.

4788. (*Mr. F. L. Davis.*) There was very little time, of course?—That is so.

4789. (*Mr. Wm. Abraham.*) What was the cause of the loss of life in the Glenavon case?—Inundation.

4790. Was the boring satisfactory there?—It was not satisfactory in the view that the place went into the workings. The boring missed the old workings, but it was a very peculiarly situated place. It occurred at a fault. The place had been driven from the other side, the old workings, and driven up the fault and down over the fault, and the bore-holes got into hard ground, and just missed by a few inches this little hole they put down. You could not say it was exactly the fault of boring.

4791. In your opinion to-day was the boring or the error in the old plans the chief reason for that inundation, or both?—Both, chiefly the error in the old plan; not seeing the place over the fault, I think that was the greatest defect.

4792. What is your opinion with regard to a second Court, a Court such as is provided for in the Mines Act in certain cases after the Coroner's inquiry? Do you think such a Court as that would assist us on occasions?—In very special occasions it might be a good thing, but as a general practice I think it would be quite unnecessary. Indeed, I cannot call to mind any case in my own district where a second inquiry would have been of any use.

Digitized by Google

Mr. J. T. Robson.

31 Oct. 1906.

4793. Not in Llest?—No, all the facts were brought out.

4794. What about Elba?—All the facts were brought out. A second Court could only have led to a prosecution. We tried that and failed.

4795. Supposing you had had a board or a Court, with the assistance of a few expert mining men in the Elba case, do you think the same facts would have been brought out? Do you think you would have had the same result, or do you not think the facts before the jury in the Elba case would have brought out another verdict from experienced mining engineers?—Experienced men might have given expression, perhaps, to a different view than the jury did, but so far as bringing out the facts is concerned, I think in one case you get it as well as another, but there might be something in what you say as to the recording of the verdict. You might get a better verdict in one than the other. As a general rule in my district, and in several others where I have attended along with my colleague at big explosions, I think all the important facts, indeed, everything that was relevant to the case, were properly and fully brought out by the Court. Then, of course, the Reports are made by Counsel and an Inspector, or Inspectors, as the case may be, and then can say anything they like, and do invariably supplement what the jury say. They report fully to the Secretary of State.

4796. Does not your long experience in South Wales lead you to think that there have been cases of accidents in collieries under your supervision, in which if you had had mining experts there judging the case, the result, or the verdict, would have been different from that which has been given by the coroner's jury?—I can only say this: probably in one or two cases a different verdict might have been returned, but as to bringing out facts, I cannot call to mind any case where the Court that you speak of would have had better results than the coroner's inquest.

4797. As far as bringing out the facts is concerned?—Yes. The inspector is there. He is a skilled man, and it does not follow that he accepts what the verdict of the jury may be. He uses his own discretion, and he can give it any complexion he likes and if it is necessary to report he does report. He acts on it quite independently of what the coroner's jury may do, but so far as getting out the facts is concerned I think it leaves nothing to be desired.

4798. Do you remember some cases that you called the attention of the Home Office to, in which your views were not quite in accordance with the verdict of the coroner's inquest?—Yes, there have been cases where I have slightly disagreed with the finding. For instance, there have been cases where the jury said they were unable to agree. They left it open where I myself had no doubt whatever as to the cause, and said so, and reported so.

4799. Do you remember how many cases, or about how many?—I could not say. That could not have happened in many cases, because it is only in serious cases that one reports at the time to the Home Secretary. For instance, I think if you go back 16 years the verdict was left open at Morfa, but I myself had no doubt as to what was the cause. It was an explosion of a gunpowder shot, and I said so in my report. The jury did not agree. Then take Tylorstown. The jury agreed on a verdict precisely in acordance with the inspector's evidence. They agreed with me exactly. There was the difference. I had nothing further to report than the verdict. I agreed with it.

4800. Do you agree that all the facts were brought out in the case of the Court Herbert Colliery, the last explosion?—That was the last case I investigated, and I think pretty well all the facts were brought out, quite enough for my purpose and I think for general purposes. I am not aware that there was anything omitted. There was certainly rather a short inquiry, but still I think all the materials were brought out.

4801. You think the real facts were brought out?—Certainly, I think the essence was brought out. That is, the cause of it. There is no mistake about that. It was caused by fire spontaneously produced, an explosion of gas caused by fire. They practically adopted what I said there, and there was nothing that I knew about the history of the colliery that was not brought out that bore on the particular accident.

4802. You were satisfied that all the facts came out at Clydach Vale?—That was in Mr. Gray's district, and I did not take part in that. I was satisfied about the National Colliery disaster that all the facts came out about that. That was the last big one. I acted in conjunction with my colleague Mr. Gray there.

4803. (*Mr. F. L. Davis.*) I am sorry to go back to the Llest Colliery, but I understood that Mr. Edwards and Mr. Abraham asked you a question as to whether you considered you had sufficient power at the present time to enforce the adoption of safety lamps. I understood you to say you had not sufficient power?—No, it is not quite satisfactory. We have not quite sufficient power.

4804. I think by Section 42 it all depends upon what the particular case is, and what the inspector thinks of it whether he has power: "If in any respect (which is not provided against by any express provision of this Act or by any special rule) any inspector finds any mine or any part thereof or any matter thing or practice in or connected with any such mine, or with the control management or direction thereof by the manager to be dangerous or defective so as in his opinion to threaten or tend to the bodily injury of any person, he may give notice in writing thereof to the owner agent or manager of the mine, and shall state in the notice the particulars in which he considers the mine or any part thereof," and at the end of the Section "unless the same be forthwith remedied shall also report to the Secretary of State." In this particular case, the Llest Colliery, the time is the essence of the whole thing. It is a very important matter. Here the time was practically only a month.

(*Mr. Cunynghame.*) May I call attention to these words before you, "If in any respect (which is not provided against by any express provision of this Act)." Safety lamps are provided for by Special Rule. I do not think he could have used Section 42 in this particular case.

4805-6. (*Mr. F. L. Davis.*) Supposing what was brought to your notice was more serious than actually did happen. Supposing there was a very strong indication of gas, you could surely have brought the matter to the notice of the Secretary of State?—Yes, but the Home Office would tell me precisely what Mr. Cunynghame has told you now.

4807. The position is this: Under Rule 8, supposing it were a serious case, a case you considered serious, you would report immediately to the Secretary of State?—I do not know "immediately."

4808. If it was a very serious case?—If there was imminent danger I certainly would. I would use every power available, but in an ordinary way I would not at once write off to the Secretary of State about every supposed breach of the rule. I should be doing nothing else.

4809. I will put it in this way, then. You find the position very serious, you acquaint the management with your view?—Yes.

4810-2. They refuse to make any change. Then you will approach the Secretary of State?—Most certainly.

4813. You would then have a prosecution, I believe?—Under Rule 8 there would be a prosecution, and you would lose the case.

(*Mr. Wm. Abraham.*) That brings us back to where we were at the last meeting here.

4814. (*Mr. F. L. Davis.*) From your answer just now to me I understand you to say you do not immediately go and threaten prosecution?—No, we do not.

4815. I take it that you find by using your influence with the various owners—I think you have stated it already—you are better able to get your own way?—Yes; many a time, in that particular case of getting lamps in, I have got lamps into several collieries by first of all writing a letter or two and then first of all writing a letter or two and then meeting the owners and discussing the matter; meeting them more than once, perhaps, and meeting the men sometimes.

4816. Your position, I take it, would be unpleasant very often if you were not to take that course. You would always be at loggerheads?—I should not like to be an inspector. I am not one now, but if that were so I should not like to be an inspector.

4817. Now, in your district you say reluctantly that the discipline is not as good?—It is not as good as I should like it to be.

Digitized by Google

4818. Or as it is in many other districts?—I am certain it is not as good as it is in some of the other English districts.

4819. Can you give us any reason for the owners not prosecuting?—That is not altogether it. I do not think that would be a complete answer because the owners do not prosecute.

4820. As a matter of fact they do not?—In some cases they do. Strange to say, some of the cases where they do they have to do the same thing year after year. That, to my mind, rather goes to show that prosecution does not put a stop to irregularities, or in these cases there would not be a necessity for doing so continually; if you look back in my reports you will find for the last nineteen years one particular company has prosecuted men for the same offence every year, and it still goes on.

4821. Do you of your own knowledge know of any reason that you can give why they do not prosecute or fine as much in this district as they do in others that you know of?—I can give no reason except that they seem to be rather more lenient. They do not take the same view of the matter as owners in some other districts.

4822. Have you heard it suggested at all that some of these owners are afraid of their men, or their men's leaders?—No, I have never heard that suggested.

4823. With regard to watering, I think I understood you to say you believe in thorough watering?—I believe in thorough watering.

4824. But you would leave the way in which it is done and the thoroughness——?—The amount of it.

4825. Yes—to the management?—I would leave the length of it and the method of doing it to the management, but I would certainly like to see that it was done over a good length, and done well. What was done should be done thoroughly well. I believe that safety lies in the thoroughness of watering a portion of the roadway.

4826. You do not think by legislation that you could so provide for every case in every colliery as to insist on watering being well done? I will put it this way. You think it is better left to the responsibility of the manager?—The carrying out of it should be left to the management; it should be made compulsory that it should be done, but I will not say done in any particular way.

4827. That is really my point?—I do not think I can bring it any nearer than that.

4828. In your district are they making any change with regard to the trams? You said they use open trams?—Yes; there has been a gradual change going on for many years. The tendency has been to make the trams solid instead of with open ends.

4829. They are following in your district what they are doing in other districts?—Yes.

4830. Now with regard to ventilation, I think I understand what you say with regard to the cap, but there is one particular point that I should like to know your views upon. You know in several places (I do not know in your district, but I expect so) in South Wales, at any rate, a good deal of coal is worked from the upcast shaft?—Yes, it is, in two or three collieries.

4831. Are your words "appreciable cap"—what were the words you used?—"A well-defined cap."

4832. Take this case. Take a case of coal being worked from an upcast shaft. When it has quite finished all its work you say there is a very small cap, or, to use your own words, "a well-defined cap." There are hitchers and men at the top of the pit working, and men working all along bringing the coal to the bottom of the pit. You say then if there is a well-defined cap those men ought not to be working?—I think the ventilation is not sufficient in that case. There should be more air.

4833. Then we come back to the great difficulty of the well-defined cap, as to what is "well-defined"?—That would soon rectify itself. I have told you before it is a matter about which there could be no dispute.

4834. You say there is a cap, the managers dispute it and say it is not well defined?—I am afraid it was not well defined then. You may depend we find cases now and then where a manager would not dare to refuse to admit there was a cap—that is, a well-defined cap; there is no mistake about it. You are not splitting hairs and saying it is a question of an eighth, a sixteenth, or a thirty-second of an inch; you are not going into the fine detail of it. When you say there is a cap there is no mistake about it. It is time to look out and get more air or stopping places.

4835. I think "a well-defined cap" is very well defined. I think it would be a big cap.

(*Mr. Wm. Abraham.*) It will be a visible one, anyhow.

4836. (*Mr. F. L. Davis.*) I wanted to put that point, because it is more general in South Wales than it was some years ago to be working coal from the upcast pit, and if these were stopped it would be a serious thing for a number of people, although I agree they should not work in a dangerous condition?—No.

4837. With regard to shot-firing, I did not follow altogether your division of the mines in your district into those which are dangerous and those which are not—in fact, I do not know that you gave it. I think you said you could do it?—I said I could do it—any inspector could do it. I gave a general definition of what I would consider a fiery mine; that would be broadly the steam coal and the highly bituminous collieries on the south crop, all worked with safety lamps and naturally dry and dusty. They would all be in the category of mines that should be considered fiery, and in which shots should not be fired except in the interval between the shifts, as is done in several of them at present.

4838. Are many shots fired at present during the shifts in the anthracite mines?—A lot in the anthracite mines.

4839. In fact, the man cannot get his coal properly unless he does?—They always say so. I think there is more shot-firing in the anthracite mines than there ought to be—more than is good for the sake of the colliery. That is not, however, the important point. My point is safety. I think it would not be practicable to say that they should only fire between shifts because they have rather more shots to fire than usual in the coal. It becomes a very complicated matter, this firing in the coal.

4840. About three-quarters of the coal in these mines is got by shot-firing?—I should think three-quarters of it would be got by firing shots.

4841. Do I understand you think it advisable, in order to legislate for shot-firing, to divide the mines into certain classes?—It would probably be necessary. I do not know that you could do it in any other way.

4842. Or you would leave the responsibility for shot-firing, as well as safety lamps, on the managers and the management?—The inspector needs further power to deal with shot-firing.

4843. In your opinion there ought to be legislation?—Yes, but I do not suggest legislation laying down exactly how the difficulty should be met in particular cases.

4844. You do not want to take the responsibility off the manager?—No, indeed I do not, nor the owner either—he gets the profits if there are any, and he ought to feel his responsibility.

4845. Now as to the timbering; do you consider that it would be an advantage to appoint special men to do the timbering?—As I said before, I do not see there is much to be gained by it. The work can be well done by the colliers—as a general rule the colliers are as capable of putting up the timber in the places as any men the owners could appoint, and in some cases I think they would do it better; they know their own place, and timber is provided at the place, and there is no reason why they should not put it up. I am not against the owners employing special men if they think fit. It has advantages; it secures a little more supervision, and it gives the man fewer places to attend to if he has to put up the timber than he would if merely acting as fireman.

4846. You would not advocate anything that would take away the responsibility of the individual collier in each place?—No; he would still be responsible for supporting the roof in the absence of the deputy, if you had deputies as in Northumberland and Durham.

4847-8. Now as to the examination by the fireman in the morning, I did not catch what you said. Did you advise more than one examination during the shift?—I think I said already there are two examina-

Digitized by Google

Mr. J. T. Robson. 31 Oct. 1906.

tions during the shift, but not necessarily by the fireman. One may be by another official.

4849-51. But only one examination is required during a shift?—That is by the Act. But under the Special Rules in force in my district and Mr. Gray's two examinations during the shift are required.

4852. What is your view with regard to the reports of those two inspections?—I do not think there is much in the reporting, really. The thing is to get the inspection made. I am not very strong about reporting.

4853. Do you think that the two inspections during the shift should be made by the same man who makes the inspection before the men do the work?—I would as soon prefer another man. I think one should act as a check against the other. I would as soon have one inspection by the fireman and another by the overman or manager.

4854. Would there be any check unless there were reports?—Every place he goes into he is able to check. He sees what is going on. The examination is the great thing. The mere reporting of it is a trifle.

4855. The last man who inspects knows what the condition of things is, but nobody else knows it if he does not make a report?—There is not much in the report. If there was anything wrong he would tell the next man. I believe far more in reporting verbally to each other, meeting and discussing matters, than I do in reporting in a book which probably they never look at.

4856. We have had before us already several inspectors who are very strong upon the inspection between the shifts being made by the same man who inspects before the work?—I rather think what was meant was that the man who makes the morning inspection shall be the same man as would make the next inspection, the fireman going on that shift.

4857. The next one under the Act, the next inspection?—Yes; for instance, some inspectors (I was one of them) do not like the night man to make the inspection for the day shift. I think the day-shift man should go in a little earlier and make the inspection for the day shift, and that the night man should go in a little earlier and make the inspection for the night shift, and so on.

4858. (*Mr. Smillie.*) You are quite aware that this Commission has been appointed in the interests of safety underground in mines?—Yes.

4859. You have very long experience as an inspector?—Yes, 33 years.

4860. May I take it from you that the persons most deeply interested in safety underground should be the underground workers generally?—They are, of course, most deeply interested; their lives are at stake more so than anybody else's.

4861. At the risk of repeating something that has already been said, I would like to go back to the Llest explosion and inquiry. You are aware that at the Maclaren Colliery, Abertysswg, there was an explosion which killed 21 persons?—Yes.

4862. Have you read the report of that?—I did at the time.

4863. Do you remember there that the inspector gave evidence that they had found a cap on the lamp for 500 yards?—Yes, I remember that.

4864. And called the attention of the manager to the fact?—Yes.

4865. That was a well-defined cap, because it was agreed to by the manager that such a cap had appeared?—I think there was no doubt about it in that case.

4866. Twenty-one men lost their lives in that explosion?—Yes.

4867. It has been said here that you had not much time between the time that you wrote this letter, dated 24th July, and the 18th August, the date on which the explosion took place?—That is another explosion.

4868. I mean now the Llest explosion?—Yes.

4869. You had not much time. May I call attention to the fact that in 1897 there had been three cases of men burned by explosions of fire-damp in this colliery two years before this larger explosion?—Yes.

4870. And that in January of the year in which this large explosion took place Mr. Gray made an inspection of the colliery and suggested to the manager that safety lamps should be put in?—Yes.

4871. On the 10th April again Mr. Gray, at your request, suggested to the managers to the effect that safety lamps should be put in there. I think that is shown in evidence?—No doubt.

(*Mr. Cunynghame.*) What are you reading from?

(*Mr. Smillie.*) Page 13 of the report.

4872. If you had power as inspector, where you were satisfied the danger existed, to stop this colliery until safety lamps were put in, the probability is this explosion would not have taken place—if you had had statutory power?—I agree with you.

4873. You had not such statutory power?—No.

(*Mr. Cunynghame.*) You ought to read the passage where Mr. Gray says: "On the 10th April Mr. Gray again inspected the No. 2 seam, and reported that he found the ventilation adequate, and could not find gas; but he added, 'A good deal of gas has come off from a rider just under the seam.' He again advised Mr. Owen to put in lamps." It is only fair to the witness to read it all. Mr. Gray could not find gas. You must put the whole thing, such as it is.

4874. (*Mr. Smillie.*) Mr. Gray, the Inspector of Mines, says he again advised Mr. Owen to put in lamps?—That is so. I know it was done more than once.

4875. May I take it that you and Mr. Gray consulted on this question?—Yes, we saw each other about it. We both had the colliery in our mind's eye, as it were, as one that required at that time particular attention.

4876. Did you apprehend danger at that colliery?—I thought it was getting to the danger line, and that they ought to get lamps, and I thought they were rather slow, and I kept pegging away at them, but the accident happened after all.

4877. You called attention on the 24th July, that was less than a month before the accident, by letter, and you put this in your letter: "You must distinctly understand that I deem the use of a naked light in such a place a violation of the 8th General Rule." Was that more as a threat to him in order to try and induce him to put in enclosed lamps?—It was rather a threat. It was bringing it very forcibly before him that if he went on using naked lights, and something happened, that he would be in a very serious position.

4878. Supposing you had instituted a prosecution against the manager on the 24th July, would you have secured a conviction?—I believe I would have lost. I quite believe that in that district.

4879. Is it your opinion as an experienced mines inspector that there should be more power vested in the hands of a mines inspector where he apprehends danger?—In certain cases a little, but it must be very carefully dealt with. I believe the time has arrived when an inspector now and then might do good and save life if he had more power.

4880. Saving life is of importance?—That is, of course, the important thing.

4881. You mentioned at the outset of your examination-in-chief a case which had come under your notice where the miners appointed two men to inspect a mine, and one worked at a different mine; the manager there raised some objection to his appointment, but you said that pressure was brought to bear on the management. What form did the pressure take?—I wrote to him and told him he was wrong, and I pointed out that under the law that he must allow the man to act.

4882. You as inspector called attention to the fact?—I pointed out his reading of the Act was wrong, and pointed out that he must allow the man to act, and he said after ever so many letters and meetings, "Then I must know that he is a practical man." I said, "Very well, that is reasonable; you can surely find that out." He said, "Bring a note from his manager that he is a practical man." But, as a matter of fact, they knew he was a practical man. It was the neighbouring colliery.

4883. Do you think, given that persons appointed are thoroughly practical miners, that it is also necessary at the time of their appointment they should be work-

Digitized by Google

ing miners?—There is no good reason for that. It does not follow because a man has ceased being a practical working miner for a year or two that he is less capable or competent to inspect a mine. I do not see any reason why they should not allow anybody who has the necessary knowledge, although he is not a practical man. I cannot understand anybody objecting to a man of that kind.

4884. You are in favour of inspection under the clause of the Mines Act by the workmen within proper limits?—Within proper limits, I think, it is a thing that might be done.

4885. Would it assist to some extent the Government inspectors in carrying on their duty?—Yes, it would be of material assistance if they would do it in the proper way and report dangers or apprehended dangers, and then the manager on his part, acting according to the law, would send a copy of the report to the inspector. By that means the inspector would get knowledge of some facts connected with the mine of which he had perhaps no knowledge, and he would supplement his own inspection and that of his assistants. It would be very material assistance.

4886. You think there should not be too much Government inspection?—I think there ought not to be too much. There might be so much of it that managers would get careless in their ordinary inspections and depend too much upon it—more than it was worth indeed.

4887. You would not suggest that there should be less Government inspection than now?—No, I think it has reached its maximum.

4888. You think this is the happy medium?—Yes: I think if you get too much, the owners would rely on the inspectors, instead of on their managers or engineers.

4889. Inspection of mines is to insure that the Mines Act is carried out by the management of the mine. That is the purpose, is it not?—You see what I mean about too much. It might be taken to be a substitute for the inspection on behalf of the owners by officials, and then the owners on their part would say, "There is an inspector there every three or six months; we need not bother to see if the manager is carrying on the colliery; we can dispense with the mining engineer now."

4890. You stated here that you think the inspection on behalf of the workmen should be absolutely independent?—I think so.

4891-3. Do you think it would be less independent if the inspectors were paid and appointed by the Government?—It would be quite independent if paid by the Government.

4894. With regard to the area of the inspection which firemen have to take up at the present time, it has been suggested by the men's representatives on this Commission that in some cases the area is far too large for inspection in the morning and during the day by the fireman. I think you agree to some extent in some cases you know the firemen have too large a district?—I have known several, and had it reduced by pointing it out.

4895. Is not the inspection in the morning by the fireman with safety lamps understood to take the form of inspection of all the travelling roadways and all the faces and all the places leading to and from the face, which may at any time be travelled by workmen during the shift?—It is a very important examination.

4896. In some ccases the distance to be covered must be very considerable if the examination is thoroughly carried out?—In some cases that have been brought to my knowledge the distance was so great that it was impossible for a man to do it as he ought.

4897. A physical impossibility?—Yes; therefore I said it ought to be put right, and it was put right.

4898. Would you be favourable to a certain area being fixed, that no fireman should be required to examine a greater area than a fixed area?—That would be extremely difficult to carry out in practice, I am afraid; circumstances vary so much. I can give you instances where it would be hard work for a man to go in and out and examine, say, 20 places, and yet it would be comparatively easy in another mine for him to go in and out and examine 50 places.

4899. I came across cases in my own experience in which a fireman who is supposed to examine all the roads leading to and from the face contented himself by going round the working face, and he could not do anything else in the time. Would you propose to make it possible for a fireman to examine all the places?—He must examine the roads and the places where the workmen are to work or pass. He cannot do that if he goes along the face from one end to the other, and misses all the roads. It is clear that is not proper examination, and therefore there is a breach of the rules.

4900. You stated, in answer to a question, that some firemen have too large a district. How do you propose to lessen them?—I have had cases where it has been pointed out the district was too big, and I have had them remedied.

4901. By approaching the employers?—Yes, the manager and the employer; generally the manager did it. In one or two cases I had to get to the employer. No doubt the manager was trying to be as economical as he could, and I had to put a considerable amount of pressure on to get the areas reduced.

4902. Do you think a fireman's duty should be entirely confined to the inspection of ventilation?—The inspection of the roofing, sides, and ventilation. That is the inspection usually. He may do something in the interval between inspections, naturally.

4903. Is it wise that he should be responsible for timbering, laying roads, and other things which might interfere with his time?—It all depends on the district, on the colliery and the conditions. In many places it would be quite easy and competent for the men to do this inspection thoroughly, and yet do a considerable amount of work, such as putting up brattices or sheets or laying roads in between.

4904. You think it might be wise?—Yes. There is a district—it is only a small one—where they have to have a fireman, but he is the fireman, and does something else. If you altered that they might try to do without a fireman, or give a man two districts, and it would not be so well done. I think you had better leave it as it is.

4905. You would not suggest an engine-winder, because he did not wind many coals, should have some other work outside the engine-house?—I think that is different.

4906. I am afraid the fireman's position is the same?—No, not exactly the same. While putting up a brattice he is paying attention to the ventilation at the time.

4907. That is part of the duty, his putting up the brattice?—In many mines the fireman does not put up the brattice. There are brattice-men.

4908. You say you have a difficulty in getting a conviction before a local magistrate, even when you were sure a breach of the Mines Act has been committed?—I have lost several cases.

4909. You had not the slightest doubt?—I had not the slightest doubt, but they were the judges.

4910. Would you suggest that any serious charges of a breach of the Mines Act on the part of a manager or an agent should be tried by a County Court Judge? The reason I put that question is that local influence may have a great deal to do with a magistrate in trying a case?—That may be; but I would not like to cast any reflections on the bench of magistrates. I think, as a rule, they do their work well, although they have gone against me.

4911. They have gone against you?—Yes; sometimes.

4912. You do not feel that it is because of local influence, but because they really believed you were wrong in your charge?—There may be a weight of expert opinion on the other side which is against the evidence of myself and my colleagues.

4913. With regard to fines, Section 66 of the Act says: "Where the owner, agent, or manager of a mine has taken proceedings under this Act against any person employed in or about a mine in respect of an offence committed under this Act, he shall within 21

Digitized by Google

Mr. J. T. Robson. 31 Oct. 1906.

days after the hearing of the case report the result thereof to the inspector of the district." Those reports, where action has been taken by the owner, agent, or manager, are all reported within 21 days to the inspector of the district?—They are supposed to be.

4914. Under Section 66?—Yes.

4915. There is no Section which provides, where a fine is taken off a workman rather than go into court, that it should be reported?—Nothing under the Mines Act.

9416. Nor under the Truck Act. A section of the Truck Act has been quoted, which says a book is to be kept with all fines in it.

(*Mr. Cunynghame.*) There is no duty to report.

4917. (*Mr. Smillie.*) There is no duty to report, but under the Mines Act, if there is a prosecution incurred they must report to the Mines Inspector within 21 days. If they take fines they are not bound under the Truck Act to report to the inspector?—I have never had one.

4918-9. The Mines Inspector may be in ignorance of the fact that there a hundred fines taken in a year unless he goes and examines the book there?—That is possible.

4920. With regard to Special Rules, I take it this is a very important thing. So far as I can learn up to the present time from the evidence given by the inspectors, they are not satisfied that much improvement has taken place because of the Special Rules—Timbering Rules—which were lately adopted. You are strongly of opinion that workmen should have a voice in initiating rules for their protection underground?—That they should have a voice during the discussion of rules and the establishment of them.

4921. Would you not say if there were special rules initiated by them and drafted for their safety, that they would be entitled to put them before a general meeting of employers and workmen?—I do not see any reason why they should not.

4922. If the workmen in a large part of a mining district of Britain had no voice in initiating or drawing up the timbering rules—you may take that for granted—do you think they would be as likely to carry them out as if they had been consulted to some extent, or if they were to some extent initiated by themselves?—They would not be so anxious.

4923. You are quite satisfied, you say, with the inquests that take place at the present day, that all the facts are brought out at the inquest?—I think so.

4924. Would you say the same thing about a serious accident that might take place on the railway, where twenty or thirty passengers are killed on the railway, and an inquest takes place. Do you say all the facts come out there, and that it is quite satisfactory?—That is a totally different thing.

4925. Are not the miners the same class of people who are killed in railway accidents?—I think I am not called upon to compare an inquest on a colliery accident with an inquest on a railway accident.

4926. I was going to put to you that the Board of Trade think it necessary to appoint a Special Commissioner in every case where a serious railway accident takes place, to make full inquiry even after the inquest has taken place. Do you not think the same thing would be wise where a serious accident takes place in a mine?—For myself I do not see the necessity for it.

4927. You are in favour, surely, of a Special Court of Inquiry where 50 to 100 men lose their lives underground, in spite of the fact that an inquest has been held?—I have no objection to it if there can be any good reason, but I cannot bring myself to think that any case has happened where a second inquiry would have brought out any facts that were not brought out during the first inquiry.

4928. Would you say the Government had been wrong in holding such inquiries after an inquest had been held?—They have not done it in my case.

4729-30. Have you ever known such a thing?—Outside, I believe, it has been done. I have never heard of a case in my district.

4731-2. Do you know there have been special inquiries ordered by the Government in serious mining accidents?—Some years ago, in Scotland, but there were no inquests then.

4933. There is one point which has not been raised to-day, which is of very great importance to us. Have you had any experience of unskilled foreign workmen in the mines under your charge?—There are very few, I believe, in the Swansea district. I think I was asked the question some time ago, and as far as I could make out the number did not exceed 60 or 80, a very small number in the whole district out of 36,000 or 38,000.

4934. You are well acquainted with Special Rule 39 dealing with the employment of unskilled persons underground?—Yes.

4935. You are of opinion that the employment of unskilled persons, unless they are employed under the supervision of skilled workmen, is a danger to themselves and to other people in the mine. That is your opinion?—Certainly.

4936. If it is wrong to employ an unskilled person alone at the working face under Rule 39, it would be equally wrong to employ two unskilled persons together?—Certainly it would be.

4937. If you were told the Court had found that is not a breach of Rule 39, would you say it is necessary that it should be altered?—I think it would be a wrong interpretation to put upon it. I should never put that interpretation on it.

4938. "No person shall be allowed to work alone" has been held to be that two may work together. That is not the intention of the rule. If you are told the Court has found that is the meaning of it, do you think it should be altered?—It should be altered if there is anybody found silly enough to take that view of it.

4939. You think it unsafe for unskilled persons to be employed alone?—Yes.

4940. Would it be more unsafe for a large body of men who were unskilled, and who do not understand the English language, to be employed underground?—It all depends how they are employed. You could draft a lot of men who are unskilled, and put one alone with a couple of men here, and dot them all over the place—have somebody with them that was skilled all along. You could put in a lot that way. I do not see that it would increase the danger to any appreciable extent, but if you put them in batches together I say that would be wrong, and would materially increase the danger.

4941. Supposing you have a mine with 100 persons employed, all of whom speak the English language, and you take away fifty persons and put fifty persons in their place who do not understand the English language, does it not increase the danger from the moment they step on the cage in the morning until they come up at night?—It might to a very small extent, but it must be a very small extent; the fact that they do not know the language is not of great consequence so long as they are continually alongside of a man who does know the language.

4942. Do you think it tends to the safety of a mine that forty people who do not understand the language, and who are unskilled in mining, who have never seen mines before, should be employed under one skilled man in a part of a mine?—No, that would be carrying it too far. I do not think one skilled man could look after forty unskilled men.

4943. If it could be proved that has been done, do you think any legislation should be asked for to improve it?—Yes, it would be reasonable to try to stop it. It is going too far.

4944. (*Mr. Cunynghame.*) You gave a number of sixty aliens employed in South Wales. Were those unskilled aliens, or did you mean sixty aliens? Do you mean they were all unskilled or not?—I meant they were all foreigners. Many of them had been so long in the mines that they had become skilled men themselves. Several of them in the Garw Valley and the Ogmore have qualified as it were to be skilled men.

4945. Some were unskilled?—A few were unskilled. There has never been a large number in my district.

4946. (*Mr. Wm. Abraham.*) You attach great importance to workmen's inspection?—I attach considerable importance to workmen's inspection.

4947. Would it not be an improvement for that

Digitized by Google

report to be sent to the inspector of a district as well as given to the owners and manager?—In every case do you mean?

4948. By Rule 38 there is a provision, "If the report state the existence or apprehended existence of any danger, the owner, agent or manager shall forthwith cause a true copy of the report to be sent to the inspector of the district." Do you think that it would be an improvement that it should be imperative by law that the men themselves should send on that report to the inspector?—I really do not think it matters much as to who sends it, as long as it is sent.

4949. That is the point, it being sent at all?—Yes.

4950. (*Mr. Smillie.*) There is no provision for it being sent at all unless there is danger?—Really, if there is no danger I do not think the inspector need be bothered with it. The report is put into a certain place, and the inspector can see when he comes. There is no object to be gained by sending it to him.

4951. (*Mr. Wm. Abraham.*) Supposing a man reports finding three, four, or five blowers, some of them large and more or less dangerous. Would it not be an improvement in the law if the man had to send that report on to the inspector?—But in that case he would—that is to say, the manager would have to do that.

4951*. Is it done?—Yes, where they report danger.

4952. How do you know?—I have had them sent several times.

4953. How do you know all of them are sent to you?—I should not say all are sent, but I know now and then they are sent, and these are the very things that cause them to be sent, the reporting of blowers or accumulations of gas. Sometimes it is a case of roof or want of timber, or bad timber—very rarely want of timber. As a rule, the causes of these reports being sent are accumulations of gas.

Mr. J. T. Robson. 31 Oct. 1906.

4954. (*Mr. Smillie.*) It would be a breach of the Act if they were not sent?—Yes, but I think that is always attended to, and they are very careful about it.

4955. (*Mr. Wm. Abraham.*) Do you think that Mr. Gray knew of a certain number of large blowers existing at a certain colliery for a length of time before an explosion took place? Have you any reason to think that Mr. Gray knew of the existence of those blowers?—Are you referring to any colliery?

4856. Not in your district?—Then I am afraid I cannot answer you. I thought you were referring to a specific case.

4957. You do not think it would be an improvement in the law that the men should send these reports on to the inspector?—I do not see that it would matter much. I do not think it matters at all who sends them so long as they are sent.

4958. Is it your opinion that if men report danger, that it is sent on to you?—I think in serious cases, where there is real danger, or apprehended danger, that practically they are. There may be cases now and then where there is a blower or two reported, where it is a daily occurrence, and it is no use sending this to the inspector. The men may take that view and not request it to be sent. However, that is how it stands. They are sent occasionally, and the cause of their being sent in most cases is the finding of blowers of gas.

TENTH DAY.

Thursday, 1st November 1906.

PRESENT:

Lord Monkswell (*Chairman*).
Wm. Abraham, Esq., M.P. (Rhondda).
F. L. Davis, Esq.
Enoch Edwards, Esq., M.P.
Thomas Ratcliffe Ellis, Esq.
Robert Smillie, Esq.
S. W. Harris, Esq. (*Secretary*).

Mr. John Martine Ronaldson, called and examined.

4959. (*Chairman.*) You are the inspector of No. 2 District, the West Scotland District?—I am.

Mr. J. M. Ronaldson. 1 Nov. 1906.

4960. How long have you been inspector of that district?—I have been an inspector in the district for nearly 32 years, and I have had charge of the district for almost 21 years.

4961. Have you had any experience of any other district besides the West Scotland District?—I was brought up in the East Scotland District.

4962. You have had experience both of the East and West Scotland Districts, but not elsewhere, with regard to mines?—Not elsewhere.

4963. I see that last year there were only three mines in your district that you had not inspected during the year?—I think so. There are one or two very small mines which were not inspected. As a general rule I have made a point for a number of years of having an underground inspection of every mine during the year, and practically they are all inspected below ground. There may be one or two that escape, but they are visited as soon as possible at the beginning of the following year.

4964. Do you consider that you and your two assistants are competent to inspect the mines as much as you think it desirable they should be inspected?—Yes.

4965. And your inspection is as thorough as you think it is desirable it should be?—As thorough as it is desirable that it should be; that is to say, of course people have divided views as to what "inspection" should be—according to our ideas of Government supervision I think it is quite sufficient.

4966. These inspections, I suppose, take up pretty well the full time of yourself and your two assistants—it is as much as you can do to get through the inspections?—Yes. My assistants do the principal underground work.

4967. You do not inspect as many mines as your assistants?—No, I cannot do so; with other duties to attend to it is quite impossible. For instance, I have here the number of visits made last year; personally I visited underground on 127 days; Mr. Mottram visited below ground on 209 days, and Mr. Pearson on 226 days.

4968. What principle do you go upon in dividing the inspections between yourself and your assistants?—I have no principle, except that either I or my assistants go wherever it is considered necessary. With regard to casual inspection, I may say that I have a book in which a list of all the mines is put down; I have there marked the dates of the visits to every mine, and at a glance I can tell whether a particular mine was visited by myself or by my assistants, or above ground or below ground.

4969. Do you make a point, say, once in every five or

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov. 1906.

six years of visiting underground every mine in your district?—Do you mean personally?

4970. Yes?—I hardly think I do. I do not make an attempt to do it regularly, but I think in every five or six years nearly all the mines would be visited by myself personally below ground. There are some which I know I do not visit personally, but as a general rule I should be in all the mines myself in the course of five or six years.

4971. Would you consider it desirable, if there was any great change in the working of a mine, say when new parts were worked or anything of that sort, that you should yourself personally inspect the changes which had taken place?—Certainly.

4972. With regard to clerical assistance, you get, I believe, £25 a year for that?—Yes.

4973. Do you think that is sufficient?—I think so, so far as my work is concerned.

4974. You are fairly able to cope with your clerical work?—I am able to cope with it. It is not a great amount of work really, after all, that can be done by a clerical assistant; it is only really routine work; you cannot get them to compose letters and do that sort of thing. So far as I am personally concerned, I find that the amount is quite sufficient for my purpose.

4975. You think it desirable that nearly the whole of the correspondence should be, at all events, inspected by yourself, and in most cases written by yourself?—It is all done by myself; it all passes through my hands. There is not a letter sent out by my assistants on their own responsibility; it all goes through me.

4976. With regard to General Rule 38, as to inspection by the men, is that carried into effect in your district?—To a very small extent. I have very seldom come across a case, and very seldom has a case been brought to my notice, in which the workmen make that inspection. I believe that lately the Lanarkshire Miners' Union have given instructions to examine a number of the mines in Lanarkshire, and I have heard of one or two being inspected lately.

4977. Then as a general rule the inspection by the men is not carried out in any mine; there is not a mine of which there is a constant inspection by the men?—That is so; with very few exceptions it is not done.

4978. And it is not done regularly in any mine?—I do not think so.

4979. Have you formed any opinion as to the desirability of such an inspection taking place?—I think it is very desirable.

4980. Do you suggest to the owners and the men that such inspection should take place?—I have suggested it, but I have been met with this reply—that the Government inspectors are paid for inspecting, and the men are not going to do it. I do not say that is the general feeling, but that is the reply which has been given when we have spoken about the matter.

4981. Is it a question of money; the men do not think it worth while to provide the money for such inspection?—That seems to be the idea; but, of course, the expense is a small thing, after all, when it is spread over all the men in the colliery.

4982. Do you find that those mines where the men do occasionally inspect are better ordered than the other mines?—I cannot say so, because the inspection is carried out to such a small extent that there is nothing to go upon to form an opinion.

4983. Now we come to the question of discipline in the mines; how is that carried out in your district—is it carried out principally by prosecutions or principally by fines?—Fines by the mine owners are practically unknown in my district. I believe there have been isolated cases, but it is not a regular rule.

4984. Then the mine owners usually proceed by means of prosecution, I suppose?—Yes.

4985. Or perhaps dismissing the men?—Or dismissing the men. A number of them prefer to dismiss a man to prosecuting him; there is a great dread, in many cases in my district, of prosecuting.

4986. Mine owners do not like to prosecute?—That is so. Many a time I have said to the officials that the men will not obey the instructions, and that they must prosecute. They say, "We would rather dismiss the men." They seem to shrink from prosecution in many cases, although there are a large number of prosecutions instituted by the owners.

4987. I see that the total number of prosecutions of workmen in your district during the last five years is fairly high?—I think it is high compared with other districts.

4988-92. It is up to the average?—I think so. I may explain that in Scotland the owners do not directly prosecute. All the prosecutions must be conducted by the Procurator Fiscal, and they are subject to his approval; he is the judge as to whether anyone should be prosecuted or not.

4993. That is in the case of prosecution of the men?—Yes, and of course in any prosecution at the instance of the Inspector, as usual he gets the sanction of the Home Office, and it is then sent down to the Crown Office in Edinburgh, and from there to the Procurator Fiscal, and if there are any objections to the proposed prosecution the Crown Office in Edinburgh and the Home Office settle the matter between them.

4994. (*Mr. Ratcliffe Ellis.*) In England the management can themselves prosecute a workman for a breach of the Rules, but in Scotland apparently they must have the sanction of the Procurator Fiscal?—Yes.

(*Chairman.*) That does not seem to make much difference in regard to the number of prosecutions of the men, because the number of prosecutions of men is about the average of the number in the other districts for the last five years.

(*Mr. Ratcliffe Ellis.*) I think there are many that the Procurator Fiscal refuses to allow.

4995. (*Chairman.*) Do you know whether that is so?—Sometimes it happens. If there is a supposed breach of the Rules, and they simply give notice to the Procurator Fiscal, when he makes inquiry he in some cases may not consider that there is sufficient evidence to prosecute a man, and he refuses to institute the prosecution. But those cases are very few in number, I think, although they do sometimes occur.

4996. We will go on to deal with the question of prosecutions of the men; you say that there is no system of fines at all, so that the man is either prosecuted or discharged, and those are the only two means of dealing with offences of any kind, even when they are very slight?—There are some exceptional cases in which fines are inflicted, but I believe they are very few.

4997. But do you not have a list of fines made out in each mine under the Truck Act; do you not ask at the mines to see the list of fines?—I cannot say that I have specially inquired with regard to this point.

4998. Then you really do not know what fines are in vogue in your district?—So far as I know they are exceedingly rare. I have heard of them.

4999. You have heard that there have been fines?—I cannot specify any particular case, but I know that they must be extremely few.

5000. Then if a man commits an offence, however trivial, there is nothing between forgiving him altogether, and dismissing him or prosecuting him?—Dismissing him or prosecuting—that seems to be the method.

5001. Do you consider that satisfactory? Do you think that there ought to be a system of fines agreed upon between the owners and the men?—No, I think prosecution is better.

5002. In all cases?—In all serious cases. Of course there may be trivial offences in which a reprimand may be quite sufficient, but where it is necessary to use strong measures I do think the man should get a chance of defending himself in Court if necessary.

5003. You do not know whether the men would prefer being fined to being brought into Court for small offences?—I cannot say so. I suspect that they would prefer to be dealt with privately.

5004-11. But still you think that for the benefit of the discipline of the mines it would be better that the men should not be dealt with privately?—I think so, except in trivial cases.

5012. You say in your report for 1905, at p. 16, that "The number of cases in which workmen have been convicted for offences against the regulations regarding safety lamps, matches, and smoking, explosives and

Digitized by Google

timbering, forms only a small proportion of these violations of the Rules, and it is not creditable to the mining community that such a widespread disregard of the regulations made for the safety of the workmen should be so prevalent." Then in your opinion discipline is not well maintained in your district?—It is not. Year after year I have called attention to that in my Reports. I see that Mr. Delevingne, at Q. 30 in his evidence before the Commission, mentions that Sir Clement Foster, in his Annual General Reports, calls attention to the want of discipline in Scotland. If reference is made to my annual reports it will be seen that year after year I have denounced, in as plain language as I could command, the recklessness of many workmen in disregarding the regulations, and the laxity of officials in enforcing them. For instance, if reference is made to my Report for 1902 (p. 13), it will be seen that I deal with that point. Would you like me to quote what I say in my Report regarding that?

5013. Yes, if you please?—"It is obvious that in order to prevent accidents, so far as it is possible to do so, carefully considered regulations have to be laid down, but it is equally obvious that unless these regulations are complied with by the workmen and enforced by the officials, the desired object will not be attained. Year after year disregard of the regulations is the direct cause of a large number of preventable accidents. There is a spirit of defiance against discipline at work among many of the miners, which is very much to be regretted, and to this I attribute many of those lamentable accidents which never ought to have occurred. To trace the origin of this state of matters one has to go to the homes in which these miners were reared as children. It will be found, I believe, that as children they have not been taught there the duty of obedience and of subjection to proper discipline. The consequence is that they grow up with the impression that they are their own masters, and they become impatient of restraint. When they enter the mines they carry these ideas with them, and when they are met there with restraints imposed upon their free actions by the stringent regulations, there is a constant conflict between their undisciplined wills and the wills of those whose bounden duty it is to see that the regulations are enforced."

5014. But do you think that the miners in Scotland are born with a larger amount of original sin than other people?—I cannot say, but I have paid attention to this matter for years, I have been watching this same idea, and I have come to the conclusion that this want of discipline amongst those workmen when they are children has a good deal to do with the state of matters existing in our mines.

5016. With regard to the officials not prosecuting workmen in cases where they clearly ought to do so, have you not a remedy by means of prosecuting the officials themselves for refusing to prosecute?—That is so.

5016-7. Have you ever prosecuted in such cases?—In many cases I have only got the officials to prosecute by telling them that unless they prosecuted I would prosecute them. I have told them so in the presence of the miners themselves. They say, "We are constantly telling the men to put up their props, or to do this or to do that." I say, "Telling them is good, but it is not enough; you are bound to enforce these regulations, and if you find that telling them is not sufficient, you must prosecute, or I shall be obliged to prosecute you."

5018. Have you ever prosecuted an owner for refusing to prosecute his men?—I have never done so.

5019. Generally the threat has been sufficient to make them do what you wanted, namely, to prosecute the man, has it not?—Yes. Of course, in the case of prosecutions of men it comes all to the same thing whether I prosecute or the owners prosecute, because in Scotland the state of things is so different from that in England; in England if an owner prosecutes he has to do it himself, and, of course, he bears all the expense; in Scotland it always goes to the Procurator Fiscal. It does not matter, so far as the man who is being prosecuted is concerned, whether it comes from the inspector or from the owner, because it always comes through the Procurator Fiscal, and there is no expense to the mine-owner in prosecuting a man in Scotland, except, perhaps, the loss of his official's day's work. It is a public prosecution at public expense in Scotland.

Mr. J. M. Ronaldson.

1 Nov. 1906.

5020. It has never been suggested that in England the mine-owners have refused to prosecute because of the expense of a prosecution?—In Scotland they are more easily dealt with in that way.

5021. I believe there are a large number of foreigners who are working in your district, are there not?—There are a good number of Polish workmen.

Poles

5022. Do you think that they have any bad influence on the mines?—Not at all. I have watched for years the conduct of those men; they are far more amenable to discipline than our own men. It is the universal testimony of the managers that these men are much more amenable to discipline, and that they will do what they are told. If they know that they are obliged to do a thing they will do it, and they are a striking contrast to a good many of our own workmen in that respect. I have only so far come across one case of a trifling accident, apparently, where one of those foreign workmen was the cause of another man meeting with an injury.

5023. Do you consider that the presence of those Poles has a good influence in the mine?—I do not know whether I can go that length, but they certainly are much more reasonable in carrying out the instructions than our own men, and I do not think their presence can be proved to be in the slightest way a menace to the lives and limbs of the rest of the workmen.

5024. I believe you mention in your report for 1902 that the workmen who are members of the Miners' Union, when they are prosecuted for contravention of the Regulations, have their expenses paid by the Union. Do you mean by that that the Miners' Union would pay a man's expenses if he was clearly in the wrong, or only in a case where he might have a reasonable defence?—This, so far as I know, has only occurred in Ayrshire in some cases. I know for a fact that in some cases the Miners' Union have defended men, but I do not believe that if they are convicted the Miners' Union pays their fines for them. The Union has an agent who acts on behalf of the Union, who has defended those men. I do not know whether that is still being carried out, but I know of cases recently. For instance, there was one man prosecuted, last summer I think it was, and the President of the Ayrshire Miners' Union appeared as a witness in his defence, and it was admitted by the Union that they had defended their workmen.

5025. Would there be anything wrong in the Miners' Union defending the workmen, provided there was something to be said for him? Would it be right for the Miners' Union to put forward the miner's case?—I would have no objection to their doing so if they thought that the miner was being ill-treated in any way, or being prosecuted without good reason. I should say it would be rather a good thing in that case; but as a general rule I think it is not a good thing for them to do so.

5026. Do you mean to say that in Ayrshire the Miners' Union would defend a man even although it was perfectly clear that there was no defence at all?—I do not know whether I could say that.

5027. Then have you any complaint to make against the Miners' Union?—No, except that I do not think this is a very judicious thing to do.

5028. But if the Miners' Union think a man may have a good case in answer to a charge against him, why should they not give him every facility for putting forward his case?—I think they are quite entitled to do so.

5029. We come now to the question of inspection under General Rule 4 by the officials of the mine. Do you consider that the inspection under General Rule 4 is sufficient, and that the districts are sufficiently small to enable the inspection to be carried out satisfactorily?—I believe that in many cases the inspections under General Rule 4 in my district are not thorough enough.

Rule 4

✓

5030. To what do you attribute that—to the districts being too large?—No, I cannot say that; but the inspections do not appear to be carried out on a proper system. For instance, according to General Rule 4, the fireman must state in his report book if he finds any defective roof. Now in nearly every colliery in the district there is never any mention made in the report of any defects as regards roof. I have gone repeatedly down into mines and found dangerous portions of the

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov. 1906.

roof, especially in roadways, which the fireman had passed that morning and taken no notice whatever of. I have called attention to this, and have pointed out to the officials that if a fireman in making his inspection finds a bad roof anywhere he is bound to enter that in his report. That is not done. Then I do not think they make a thorough inspection as regards the roofs even of the working places. It is most unusual for a fireman going along making his morning inspection to tap the roof to see whether it is safe. He simply goes along and looks at it. Now, that is not a proper inspection of the roof of a working place. Practical men know that one way of finding out a bad stone is to tap it with a hammer or a pick. Then I am not sure—although it is very difficult to prove—that the fireman always goes through every roadway. According to the General Rule he is bound to inspect every roadway through which persons have to pass during the course of a shift. There is a tendency with them simply to go into the working places, and they mark with chalk the day of the month upon their working places, but I do not think in all cases they traverse the whole of the roadways themselves.

5031. Then your view is that the firemen do not do their duties?—In many cases the firemen do not do their duties.

5032. Have you ever suggested that the firemen should be prosecuted for not doing their duty?—Firemen are often prosecuted for not doing their duty, but it is difficult to prove this against the fireman; he is alone in making his inspection, and, unless by his own admission, it is difficult to prove that he has not traversed the roadways.

5033. No; but, for instance, if you go down and find the roof in a dangerous condition that shows pretty clearly that the fireman whose duty it was to look to the roof, had not attended to his duty?—That is so.

5034. Then could you not find out whose duty it was to go into that part of the mine last to see to the roof?—Yes.

5035. Could you not insist upon his being prosecuted?—I should, certainly. I cannot recollect at the present moment that we have had reason to do so, because in calling attention to this matter it has generally been put right.

5036. It is all very well to say that it has generally been put right; naturally, if you find the roof is in a dangerous condition it will be put right, but what you have to do is to see that somebody is punished for its not being right?—Of course, as a rule, before taking the extreme step of prosecuting we give notice, and if the offence is repeated then prosecution follows. I cannot say that the very first time we found such a state of matters we should always prosecute. If we always did that when we found offences against the Act, our hands would be full enough, and we should never have done prosecuting.

5037-8. It seems that in your district matters are in a highly unsatisfactory condition with regard to inspection by these officials, and I should have thought that a good many prosecutions at first might have had a beneficial effect. But it seems that now there are hardly any prosecutions of those under-officials, so far as I can understand?—There are prosecutions of them. If you refer to the Report, it speaks for itself. I see there were 13 prosecutions of under-officials last year.

5039. You do not know how many of those would be prosecutions of firemen?—Yes; eight firemen were prosecuted last year.

5040. Probably for dereliction of duty in not carrying out their inspections properly?—Yes.

5041-2. But it appears that matters are not getting any better in your district; there is still this laxity of inspection by the officials?—I believe supervision is not carried out as it should be.

5043. And it is not improving?—I do not know that it is.

(*Mr. Wm. Abraham.*) There is one question upon this which I think we could clear up. In your opinion, what is it that accounts for this insufficiency of inspection by firemen? Is it indifference to duty, or is it that the districts which they have are too large for them to carry out their duties as minutely as is requisite?—I think the principal cause is what I have already stated—that it is due to their not being taught how to obey commands.

5044. (*Mr. Smillie.*) The firemen?—I thought you were referring to the workmen.

5045. (*Mr. Wm. Abraham.*) My question was put in order to clear up this point with regard to the inspection by the firemen?—There is one point with reference to those firemen which I think may account partly for it, and it is this: In a great many cases I do not think they are the most intelligent men—the best men—for the purpose.

5046. (*Chairman.*) Are they paid less in your district for the work than in others?—I am sorry to say that in many cases they are actually paid much less than the miner who works the coal.

5047. Do you not think that may have something to do with it?—There is no inducement to the best men to take up the position. I think I have mentioned that in my Report for last year or the year before.

5048. Then you consider that one of the reforms which ought to be instituted by the mine-owners in your district is that they should see that the firemen are better paid?—That is so.

5049. (*Mr William Abraham.*) And get a better class of man?—Yes.

5050. (*Chairman.*) But supposing a good class of men were made firemen, and that they had a reasonable pay for the responsible work which they undertook, do you consider, as Mr. Abraham put it to you, that the districts of the mines are too large or not?—I do not think, as a rule, the districts are too large. I have only had occasion perhaps two or three times to call attention to this point.

5051. (*Mr. Wm. Abraham.*) How many hours before the shift begins are these men supposed to inspect their districts?—According to the Special Rules, it must be done within two hours.

5052. Then what is generally the size of the district? What would be the length of the roads that the fireman would have to travel, and how many working-places would he have to examine?—That varies very much. You can easily understand that where the workings are low and the roads are low a man takes a much longer time to go over the district, and where the roads are high a man can go much more quickly over it. The conditions vary very much.

5053-7. The question is whether the length of the district and the number of places that those men have to visit is not the real reason for such dereliction of duty. Is the district of such a size that it is unreasonable for a man to be expected to do that duty—examining minutely (as I am glad you think it is necessary to do) all the roads, the sides, the roofs, as he goes along?—I cannot say that I have found that to be the case, but it is easily seen that if a man had a smaller district he would have much more leisure to make a thorough examination.

5058. (*Chairman.*) Do you think General Rule 4 is sufficient?—No, I think General Rule 4 should go further, and that it should provide that two inspections in the course of each shift should be made instead of one. I may state that in Scotland, previous to the passing of the 1887 Act, our Special Rules required the fireman to make three inspections daily, one before the shift began, and two during the course of the shift; and when that Act came into force, and we had to go over the Special Rules and re-arrange them, the mine-owners objected to two inspections in the course of a shift, and they said "No, the General Rule here only requires one during the course of the shift, and we do not see why you should ask us to do anything more." We had to give in on that point; there were some other concessions made in other directions, and I am sorry to say that a retrograde movement was taken at that time. I do think that at least two inspections should be made of every working place during the course of the shift, and further, that if any fire-damp has been found during any one of those inspections, it ought to be recorded in the report book.

5059. I see from the "Summary of Fatal and Non-fatal Accidents," page 9 in your Report for 1905, you had 77 deaths and non-fatal accidents to 311 persons reported, which was rather less than in the preceding year, but it seems a high average. Then, taking the last five or six years, are the accidents increasing or diminishing in number?—Do you refer to all accidents?

Digitized by Google

Mr. J. M. Donaldson. 1 Nov. 1906.

5060-2. Yes. 1903 seems to have been the worst?—1903 was an extremely bad year, especially for falls of roof. They have decreased since then, and this year, I believe, so far as one can judge, will be a better year than any of them. If you take the years from 1888 to 1895, the average deathrate per 1,000 employed above and below ground was 1.77; from 1896 to 1900 it was 1.61. From 1901 to 1905 the number was 1.46, so that there is an improvement.

5063. So that there has been some progress?—There is a little decrease, but it is not what it ought to be.

5064. With regard to the remedies, and first of all with regard to watering, is that practised much in your district?—Very little. The number of dusty mines in my district is not great; they are principally round about the Hamilton and Bothwell districts in Lanarkshire. There, wherever there is any dust at the working face and blasting has to be done, they use something like a garden syringe for sprinkling water out of a pail; that is quite sufficient to lay all the dust. There is no great quantity of dust at the coal face. There is some dust, and in order to comply with General Rule 12 it is found that one pail of water and a syringe as a rule is enough to do away with all the dust within twenty yards of where a shot is going to be fired. Some of the roadways are dusty, but there is very little watering done; there are only one or two cases where anything is done at all in the way of watering.

5065. But ought it not to be done?—It would be better if it were done.

5066. Do you suggest to the mine-owners that they should water the roadways?—Well, it is spoken about, but no definite steps have been taken.

5067. But are not any of these explosions traceable to coaldust?—I believe all the bad explosions in Scotland have been made much worse by coaldust, although, as I have said, the number of dusty mines is not very great.

5068. No, but you seem to have some dusty mines?—Yes.

5069. Do you not consider it to be your duty to make representations to the owners, and if they do not water mines sufficiently, in your opinion, would it not be your duty further to make representations to the Home Office?—Of course, I have been going in line with my colleagues all over the kingdom in this direction. It is a difficult question.

5070. You are in communication with your colleagues with regard to the matter?—Of course, we have our meetings and we discuss those matters.

5071. You do suggest that more pressure ought to be put upon the owners to water mines. Do you think that there ought to be any special rule in your district about watering mines?—I think that all the main roadways ought to be kept clear of dust either by watering or by removing the dust, or by some other means. So far as my district is concerned, I do not see that it would be a very great hardship. When a mineowner makes a road, if he happens to have a low seam of coal, he has to blast down the roof and to enlarge the roadway, and all that sort of thing, at great expense, and I think the expense of keeping the main roadways free from dust, so far as my district is concerned, would not be very great, and it would be quite reasonable to ask for it to be done.

5072. Do you think it would be desirable to introduce in these dusty mines improved types of wagons. What wagons have you?—Some of our wagons are of iron, but most of them are wood. The coal is not dusty, as a rule, when it comes from the working; it is not like the dusty seams in South Wales, for instance. We have very little of that sort of thing, and I do not think there is much dust made by the tubs coming out from the working face to the pit bottom.

5073. So that you think it would be hardly worth while to insist upon any particular type of wagon being used?—I do not think it would in my district. As a rule, the tubs are pretty tight.

5074. Do you think that the coal ought to be watered in the wagons—that there ought to be any system of spraying?—I do not think that is called for. Of course, at present I am only speaking for my own district.

5075. Now with regard to the first General Rule, as to ventilation. What do you say as to the ventilation of the mines in your district?—The ventilation of the mines in my district, I may say, has very much improved as a whole during the thirty years or more that I have been there. The difficulty we have is not with regard to a cap, because a cap shown on a safety lamp nowadays is hardly ever seen in the moving air current. I have not seen it for several years. I saw one isolated case two or three years ago, and the moment I called attention to it the section was stopped until more air was put in, and the cap disappeared. The quantity of gas given off is not very great. We have some difficulty in regard to the interpretation of what is "an adequate amount of ventilation." We have had prosecutions simply for want of an air current—simply because of a bad atmosphere to work in—and we have had a difficulty in proving what constituted inadequate ventilation. Our difficulty has been more as regards that point.

5076. You have no difficulty with regard to firedamp. I mean firedamp very seldom shows itself in your mines, and when it does show itself there is no difficulty in getting the owner to withdraw the men?—I suppose you are referring now to the cap on the lamp in the air current?

5077. Yes?—No, it is hardly ever seen. There is no difficulty as regards that point.

5078. Do you suggest any alteration of General Rule 1?—I am quite at one with those who propose that a cap showing on the flame of a safety lamp should be the test for adequate ventilation in that respect. I say that a cap on the flame of a safety lamp would be a sufficient test for a standard of ventilation provided that the kind of oil used in the lamp was specified, say best colza oil. It would not do to hold that if the workman used a more sensitive safety lamp, such as some of the lamps burning naphtha or colsaline, the standard should be the cap shown by that lamp, while the standard for others would be the cap shown on the flame of a lamp burning colza oil. If such a standard were adopted it must be the same standard for all mines.

5079. Do you think that the appearance of a cap would be the best test?—The best practical test.

5080. We have had discussions as to what a cap is. It is suggested that the words should be "a clearly defined cap." How would you define "clearly defined cap"?—There is a little difficulty there. I recollect a number of years ago when I found a cap in some mines in my district, and we wished the owners to put in more air to do away with it, I was accused of seeing a cap when nobody else could see it. But you might make the heights a test—say an eighth of an inch, or something of that sort, on a colza oil lamp—something definite.

5081. You think the test of adequate ventilation should be the absence of a cap on the lamp, and that the test should be colza oil lamps. Then would you insist upon colza oil being used?—Or any other oil that shows a cap just the same as colza oil.

5082. But you would not allow naphtha?—Well, naphtha is more sensitive to a cap—it shows a cap better. Of course, the best method of all is to refer back to the percentage of firedamp by chemical analysis, and supposing it came to a case of prosecution it might be necessary to get an analysis made, but for the ordinary standard for everyday use as a practical test I say a cap is quite sufficient.

5083. And that there should be a General Rule to say that whenever a cap appeared on a lamp the workmen should be withdrawn?—I am at one with that idea.

5084. Are safety lamps in use generally in your district?—Not generally. I do not know the exact percentage, but the greater number of our workmen use the naked light. The safety lamps are mostly used in Lanarkshire, round about the Hamilton district.

5085. Have you had explosions due to naked lights?—Nearly all the explosions in my district are caused by naked lights.

5086. Therefore there have been in your district a large number of explosions caused by naked lights, and yet safety lamps have not been introduced?—That is so. In my district firedamp seems to make its

Digitized by Google

Mr. J. M. Ronaldson.
1 Nov. 1906.

appearance in rather a different way from any of the others. In a great number of the mines where we have those non-fatal explosions there are just little pockets of gas now and then. They might perhaps go for months without gas being found, and then suddenly one morning there is a hole in the roof, and a little gas collects there, and it may be ignited, and then it may never be seen for months again. A great many of the non-fatal explosions that we have are very small things, after all. Only three or four days ago I went to investigate an explosion, and I found the man at work again; and that very often happens. But, of course, if a man is injured the explosion requires to be reported.

5087. Do you think it desirable that men should be allowed to work with naked lights where there is a considerable likelihood of, as you say, some sort of accumulation of gas which would cause an explosion?—No, I do not say so, I wish to have more safety lamps introduced, but there is great difficulty in Scotland in getting either the workmen or the owners to adopt safety lamps. I may mention one case. In 1891 I had safety lamps introduced into a colliery by arbitration. A few years afterwards both the workmen and the owners petitioned to get them out again, but the Home Office did not agree to the reintroduction of naked lights. In 1903, however, the owners decided to take out the safety lamps, and as no gas had been reported for a considerable time, the Home Office had no ground for taking action.

5088. Although there had been explosions of firedamp in that colliery?—Well, there used to be explosions in that seam; the gas seems to have drained off now, and since the lamps have been taken out there has been one slight explosion, but I should not be surprised if there should be others. My opinion is that if there has been an explosion safety lamps ought to be used for twelve months after that. I think that is the same opinion as Mr. Hall expressed. Of course, it would not do to wait in every case until there was an explosion. In some cases when they open up a mine you may know at once that there ought to be safety lamps put in, but if an explosion has occurred, for twelve months after that I think safety lamps ought to be used. I do not think that would be a very great hardship after all, because at the present moment there are a great many of our mines using safety lamps which I must say are much freer from gas than some of those in which naked lights are used, and it would put the owners of such mines on more equality commercially—they would be more equal in that respect.

5089. Do you try to persuade the owners and the men to use safety lamps. Do you try and combat the prejudice to the men against safety lamps?—There is a prejudice.

5090. Do you try to combat it and talk to the men about it, and try to get them in a more reasonable frame of mind with regard to safety lamps?—I cannot say that I talk very much to the men about it, but I know it is a fact that they do object to them. As a rule, if safety lamps are introduced the men expect 2d. per ton more on their coal, and the owners naturally object to it, although I must say that where safety lamps are introduced they put out as much coal with the safety lamps as with the naked lights.

5091. *Mr. F. L. Davis.*) In the case which you mention, which went to arbitration, and in which safety-lamps were made compulsory, was there an alteration made in the wages at that time?—I cannot recollect that, but it is almost certain that there would be. I know the men would object, unless there was.

5092. Then when they went back to the use of naked lights again, would that allowance be taken off?—No doubt it would be so.

5093. (*Chairman.*) Have you a copy of the petition from the owners and the men to allow the mine to be worked again with naked lights?—I do not know whether I have that, or whether it is at the Home Office.

5094-5. That could be got?—Yes.

Rule 8

5096. With regard to Rule 8 as respects the use of safety-lamps, do you consider that Rule 8 is sufficient, or do you suggest that it should be in any way altered?—I do not think it is sufficient. Of course I have given my opinion as to where safety lamps should be used, and I think Rule 8 should be amended in that respect.

5097. You mean that you think it should be made a general rule that where an explosion of firedamp had occurred, for at least a year afterwards safety lamps should be used?—I think so.

5098. Have you any special rules about safety lamps in your district?—We have Special Rules, but there is nothing very definite about them.

5099. There is nothing which you suggest might be incorporated in the General Rules?—No, not from our Special Rules. In many ways they are just a repetition of the General Rules, simply bringing the General Rules before the workmen.

5100. I suppose you would agree with everybody else that screw locks ought to be abolished as soon as possible?—I do. I may say that there are still a number of screw locks in my district, but the lamps in which they are used are the Protector type, whereby you cannot open the lamp without extinguishing the light. A year or two ago I communicated with all the mineowners with a view of getting those done away with. Some have done away with them, and others have not; but I have not pressed the question forcibly upon them, for this reason, that in a great many of those mines firedamp is very little seen—in fact in many of them firedamp is never seen for months—and if we were too urgent regarding this matter, they might propose to take out the safety lamps altogether.

5101. With regard to safety lamps, do you think that the type of lamps should be tested, and that the best type of lamps should be made compulsory?—Yes; I am of opinion that the type of lamp for use in a mine should pass a test. I would not specify any particular lamp.

5102. That if it passed a specified test then it might be used?—Yes.

5103. Have you had cases of accidents due to defective examination of lamps? For instance, lamps being brought into a pit without any gauze on, or anything of that sort?—Very few. There have been one or two accidents due to defective lamps. For instance, there was a fireman not long ago making his inspection with his lamp, and he had a hole of about one-eighth of an inch square through the gauze, and in holding it up he fired the gas. Of course, the man was to blame for taking the lamp in in that state. There have been one or two cases of that sort, but very few.

5104. Do you have much shot-firing in your district?—A great deal of shot-firing.

5105. Do you have a lot of shots fired simultaneously?—Yes, in some cases. It is only in cases of stone-work.

5106. In stone-work you think it almost necessary that shots should be fired simultaneously?—Yes; there is great advantage in doing so. The greatest danger that I see in firing shots simultaneously is that one or two shots might not ignite, and there is no means of knowing whether they have all gone off or not, and when the men come back again to begin to work, they may strike a detonator.

5107. There is a Special Rule in the North with regard to miss-fire shots, which I think has been approved by almost every Inspector to whom it has been put. It is a rule dealing with the subject of detonators. Have you any Special Rule with regard to shot-firing in your district?—No, nothing very definite.

5108. This is a Special Rule which has been laid down in some parts of England, and has been generally approved of by Mine Inspectors. "No missed shots shall be unrammed." You say the difficulty is to find out any missed shots at all? I mean, if you fire a lot of shots simultaneously, some shots may go off, and you do not know about it. That is the difficulty?—Yes.

5109. This rule apparently would not meet that difficulty. You might have no idea at all that there was any detonator left?—That is so.

5110. However, I will take your opinion on this rule: "No missed shots shall be unrammed, but in all cases a fresh hole shall be drilled, which shall not be within twelve inches of any hole which has missed fire, and shall, so far as practicable, be parellel with it. Should the missed shot contain a detonator the shot-lighter shall, before firing the fresh hole, attach a string to the fuse of the missed shot, and secure it to a prop or to the cable. Immediately after firing

Digitized by Google

the shot-lighter shall, with his hands only, and with the greatest care, search the coal or stone, and if he fails to find the detonator, or is not satisfied that it has been exploded by the second shot, he shall cause the coal or stone to be loaded with the greatest care, and sent to the surface for further examination. Should the missed shot not be dislodged, further holes must be drilled and fired until this is effected. He shall report the circumstances to the Under-Manager without delay, and hand the detonator to him when found." Do you think that would be a good rule?—I think so. I may say we have one Special Rule regarding shot-firing, Rule No. 95: "If a shot has been lighted and does not explode, no person shall enter the place where it was lighted until thirty minutes have elapsed." That is the only Special Rule we have bearing upon that.

5111. Have you any suggestion to make as to shot-firing, with regard to the kind of explosives which should be used. For instance, is gunpowder used at all?—It is very much used in my district.

5112. Do you think it ought to be used?—Of course, that is, in the practically non-fiery mines. In the great majority of our mines there is really not much danger of an explosion of dust caused by gunpowder firing. There have been cases in the district of explosions of dust caused by shot-firing.

5113. But in a dusty mine you would wish the use of gunpowder to be prohibited?—Certainly, I am at one with that.

5114. Is it prohibited in your district in the case of all dusty mines?—Of course, the Explosives Order deals with that.

5115. Do you consider that the mine-owners might be more careful than they are now in the use of gunpowder?—As regards gunpowder, there are a great many accidents in my district with gunpowder, and the majority of those are caused by a spark from the lamp in the miner's cap falling on the gunpowder that he is handling. Some years ago I got a Special Rule introduced, prohibiting a miner having a lamp in his cap or near gunpowder which he was handling, but in spite of that there are a good many accidents from that cause. And if safety lamps were introduced that would eradicate one danger from gunpowder.

5116. I suppose you would hardly suggest that in all mines where naked lights were used there should be no gunpowder used? Would you go so far as that?—I would not go that length. Certainly gunpowder is a dangerous explosive where naked lights are in use, but I would not go the length of saying that its use should be prohibited on that account. If we could get the men to take more care it would be a good step.

5117. Do you think the men should be prohibited from buying their explosives, except from the mine-owners and from certain licensed places?—Yes, I think they should get all their explosives from the mine-owners.

Timber

5118-9. With regard to falls of roof and ground, have you any Special Rules for timbering?—Yes. They are additional Special Rules at the end of the Code of Rules. Additional Special Rule 6 is worded thus: "Where timber is used to support the roof the Manager shall keep posted at the mine a notice, which may be varied from time to time according to circumstances, notifying for each seam or district of a seam that no point of the exposed roof in the working place, unless where brushed, shall be more than a specified distance from a prop, lid, crown, building, mineral face or other roof support."

5120. How does that Special Rule work? Has it done any good?—I am sorry to say that hitherto there seems to have been no great improvement. In fact, the first year after that was put in operation was about the worst year that we had for falls, and we have all been perplexed as to why that should be; but I think there is no doubt that the want of attention to the rule and of rigidly complying with the rule on the part of the workmen, and the want of proper enforcement of the rule on the part of the officials has a great deal to do with the absence of improvement. I am quite satisfied that the rule is good, and if properly carried out it is bound to have a marked effect in the diminution of accidents. In many cases there has been a difficulty through the Manager specifying too wide a distance, and we have endeavoured in all such cases to get Managers to reduce that.

Mr. J. M. Ronaldson.
1 Nov. 1906.

5121. I suppose where a manager specifies a certain maximum distance between the props, when that rule is complied with it is considered that everything is done that need be done?—When a man argues in that way I point out to him the General Rule, which says that the roof of every working place shall be made secure, and I say "This is not sufficient to cover you." If they specify a distance which is greater than is actually done in practice—which is frequently done, just to keep themselves safe—I point out to them this Rule, and say, "You must put up props sufficient to comply with that Rule."

5122. It has been suggested before now that one reason why there has been some increase in the number of accidents from falls of roof is that the men are satisfied when they have complied with these Special Rules about propping, and they do not consider there is anything further to be done and do not look out as much as they did before, and that it would be better to have a rule in general terms rather than one specifying certain distances?—I have considered that point myself, but I cannot say that I have any evidence to point in that direction. There may be a tendency for men to rest content with putting timbers up in accordance with the Special Rule, and taking no further steps; but I cannot say that I have any evidence to prove that.

5123. Do you think it would be desirable that the propping should be done by special men, as it is in some places, or that it should be done by the miners themselves as they are working?—I am not very certain about that. If we got the men under proper discipline, and also the officials who have to enforce those regulations, I believe the men are the best persons for putting up the props. But unless discipline is well maintained in that respect, and the miners do put up the props, I think it is better that, as in the North of England, the props should be put up by specially appointed persons.

5124. Then on the whole I gather you would be in favour of a special class of man being employed to put up props in your district?—Provided we could not get the workmen to do it properly.

5125. In the present state of discipline and education of the men?—If there was proper discipline I believe the working man whose life is exposed to danger is the man who should put up the props.

5126. But, at the same time, supposing a workman whose life is exposed to danger is either ignorant or undisciplined, it perhaps might be just as well that somebody should look after him in regard to the matter of propping, or that somebody should be charged particularly with the duty of looking after the propping?—I find it is not the workman who is ignorant that meets with accidents usually; it is often the old collier who is too wise to be taught. I often have a talk with those old fellows in going round the mine, and I sit down and have it out with them. Our old Scotch miner who thinks he knows better than his employers all about the proper propping of the roof is, I find, the man who is most difficult to deal with.

Haulage

5127. With regard to haulage accidents, there has been no improvement lately?—There has been no improvement in my district lately. There is not much difference from 1891 to 1905. The death rate for 1891 to 1895 was .21 per 1,000 employed, while for 1901 to 1905 it was .22.

5128. What is the most prevalent kind of accident from haulage in your district?—I can hardly say. There is a great variety of them.

5129. A lot of men are run over by trucks?—Yes; men are run over by trucks, and there are accidents by men drawing themselves in narrow roads. One man lets a tub run down and jambs his neighbour; and then on haulage roads there are accidents from the clips slipping and hutches running away; and then men riding on the journeys and tumbling off and getting run over—an infinite variety of accidents.

5130. It has been suggested to us that perhaps it might be desirable to make a General Rule providing that there should always be 2ft. on one side of the wagons, and always on the same side, between the wagons and the side?—That would be a very good rule if it could be carried out; but in a great many mines there is a practical difficulty in maintaining that width of road. It would be all very well in some mines, but it would be a most difficult thing to carry

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov.: 1906.

out in others. I would suggest that where tubs are drawn to the rise, and the down-coming tubs are not on the same line of rails, they should have self-acting blocks at intervals to prevent runaways. In some of the mines in my district these are in operation.

5131. Do you find that they answer the purpose?—They serve the purpose. A tub cannot run more than 30 or 40 yards at the most until it comes across one of those catches.

5132. Have you any other suggestion to make?—I would say, if possible, have larger roads. It is a difficult thing to do, but there is no doubt a great many of those accidents are simply due to the contracted roadways. A man has no room to stand at the side, and so on. Also there should be separate travelling roads made where possible. In some mines they have those travelling roads, and they keep the men off the main haulage roads altogether. It would be a good thing, if possible, to have separate travelling roads for the workmen. Of course, it cannot be done in the branch roads near the working face. but I refer principally to the main haulage roads. I think also that roads should be kept in much better order than they are in many cases, and that they should be made with regular gradients Some of the roads are switchbacks, and the rails are in bad order The tubs run off the rails and jamb pony-drivers, and that sort of thing. All those points would tend to greater safety.

5133. If the rails were in bad order I suppose you would report that at once to the owner, would you not?—Well, it is to the owner's advantage to have his rails in good order.

5134. Surely it is a matter of safety of the miners, and it is a matter which would be within your province to report about if you found that the rails were in a very bad state?—I have frequently called attention to the matter, and have pointed out that it was to the owner's advantage to have roads in better order.

5135. I suppose you usually find that the owners are reasonable in that matter?—As a rule they are reasonable.

5136. (*Mr. William Abraham.*) Do you not find, in that case where you interfere, that the management say you are interfering with the management?

5137. (*Chairman.*) Do you find that the owners resent any suggestion of that kind?—No; because I bring it forward on the ground of safety.

5138. Just so; and you find that the owners do not resent it. They do not say "Mind your own business"?—No; they do not resent it. I put it in a way so as to show that it is not only to their advantage to have good roads, but for the sake of safety.

5139. Then you find that view is accepted by the owners?—They do not resent it when it is put in that way.

5140. With regard to breakages of ropes and chains, you have some cases of accidents from those causes?—I do not think there are many accidents through breakages of ropes and chains; there are a few.

5141. On the whole you consider that the winding arrangements are satisfactory?—Do you refer to the winding in the shafts?

5142. Yes?—Yes, the winding arrangements are pretty good; but we have a good many shaft accidents in Scotland.

5143. From what cause?—Various causes—men falling off the cage in unexplained manners.

5144. With regard to falling off the cage, would you be in favour of having bars or gates?—Yes; I think something could be done without incurring extra risk, so as to have cages more properly barred in while men are riding. Then another fruitful source of shaft accidents in Scotland is men falling from mid-workings; but those accidents are not so prevalent as they were a few years ago.

5145-7. How do they fall from mid-workings?—A man thinks the cage is there, and he pushes forward a tub and it goes into the shaft, and when that happens he almost invariably goes after it. But some years ago I devised a Special Rule for dealing with that by having signalling and gates, and when that rule came into operation, those accidents from men falling from mid-workings notably decreased; they are not so prevalent as they were.

5148. Do you mean he simply wheels his wagon into the empty air?—Again and again the men have thought the cage was there, being in an imperfect light, or, perhaps, because they have not been looking, —they take it for granted that the cage is there: they shove the tub forward, and it goes into the open shaft, and almost invariably the man tumbles after it.

5149. They might also kill a man at the bottom of the shaft, or destroy a cage that was coming up the shaft?—Yes, they might do so. I never knew it kill anyone below, but often a man has gone over himself.

5150. Do you know anything about safety catches—have you seen them in operation in your district?—There are not many in my district. There is an old patent, which I have known myself for forty years or more, which I think is called White and Grant's patent. I have seen it in operation at the Govan Colliery.

5151. How does it act?—It acts by an eccentric—springs catching on the wooden guides.

5152. They must be wooden guides?—Yes. I do not know whether there is another colliery in the district at present which has those applances.

5153. What do you think of the appliance: do you think it is of any use?—It was applied in the colliery which I was brought up at long ago, and I have seen it come into operation, and I have also seen it fail; by reason of the guides being rather worn, or the springs not working very well, it did not catch; but if it is in good working order it usually catches. Of course there have been a great many devices brought into operation since that was originated.

5154. Do you think that the more recent devices may be better? You are not sure that the old device is the best?—No, I could not say so.

5155. Have you any other suggestion to make with regard to winding and haulage?—No.

5156. With regard to the establishment of Special Rules, the process of establishing them seems to be a long and cumbersome one. I understand that special rules have to be established in every case separately for each new mine as it is opened?—At present that is so.

5157. Do you think that is a desirable state of things?—Seeing that special rules are now established everywhere, I see no reason whatever why the present cumbersome method of getting them established should continue. In my district the same code is in force at all the mines, with the exception of two, and is also in force in the greater part of East Scotland district. There seems to be no valid reason why these rules should not come into force whenever a new mine is opened or work renewed at a discontinued mine. They always are the same, and sometimes a shallow pit may be sunk before the special rules regarding sinking pits come into operation.

5158. Have you a separate code of Special Rules for East and West Scotland?—We have the same code for Scotland: the two districts went together, except, for instance, with regard to the shale mines in the east country; at some of those steep mines in the east country they have some separate rules to suit the circumstances there. But, as a rule, we have one code throughout the whole of Scotland.

5159. Do you suggest that if a mineowner opens a new mine, in all cases the Special Rules should apply, or would you think it right that a mineowner, if he thinks his mine ought to be exempted from the Special Rules, should be able to give some sort of notice, and have his case adjudicated upon?—If it were a mine that was going to be entirely different from any of the existing mines in the district, then I should certainly say the mineowner ought to have something to say on the subject; but, as a rule, if he is simply going to start a coalmine like the adjoining mines, I see no reason why these rules, just as they stand now, should not come into operation the moment he breaks ground.

5160. There is another question with regard to the establishment of Special Rules. As you know, at present, if the owners do not agree with the Home Office, Special Rules can only be established by a long process of arbitration, which might, no doubt, to a certain extent be simplified?—Yes.

Digitized by Google

5161. I should like to ask your opinion as to whether you think it is necessary that arbitration should be in all cases resorted to, or whether it might not be sufficient, as is the case of regulations for dangerous trades under the Factory Act, that the Secretary of State should hold an inquiry, and should himself decide, after hearing all the parties, as to whether a Special Rule ought to be allowed or not. Do you think it is necessary, for the proper protection of the owners, that in every case there should be arbitration, or do you think that, as in the case of the Factory Act, the Secretary of State might be made paramount in the matter?—That is rather a difficult question. As I said before, if a mine is going to be just like other mines, then let those rules come into operation at once.

5162. I am referring now to the establishment of new Special Rules for all your district, for instance?—Do you mean in the case of a whole district?

5163. Yes. Supposing it was suggested that a new Special Rule should be added to the other Special Rules?—I am not in favour of the decision being left to the Secretary of State, as it is under the Factory Act. I would rather have the matter threshed out—because new rules are not made every day, and it is best to have the whole matter threshed out between the owners and the Inspectors, in my opinion.

5164. Do you think there might be any simplification or codification of the rules in force in the various districts? For instance, you say that the codes now in force in the two divisions of Scotland are pretty much the same: do you think that instead of having twelve different codes, or whatever number of different codes there are, you might perhaps have two or three different codes?—I cannot speak from experience of English and Welsh mines with regard to that, but so far as Scotland is concerned, I say certainly that as it is at present, one code of rules is quite sufficient.

5165. Would you say that there are a large number of Special Rules which might be made to apply all over the country, and might be put into an Act of Parliament and made General Rules?—I think so. Many of the Special Rules might be embodied in the General Rules. This would pave the way, I think, for simplification of the rules.

5166. Now, with regard to investigation into mine accidents, perhaps it is rather difficult for you to express an opinion as regards Scotland in this matter, because there has been new legislation put forward for Scotland, so that in the future accidents will be inquired into much more fully, as I understand, than they have been hitherto?—I think you are under a misapprehension. For a number of years past we have had Fatal Accident Inquiries in Scotland.

5167. There have been considerable complaints made that the miners were not represented at inquiries up to the present, so much so, that there has been an Act of Parliament recently passed on the 4th August of this year, dealing with the process of inquiries in Scotland. It would perhaps be difficult for you to express any opinion until you know more about the working of that Act?—The working of that Act has changed the position very little, I think. The new Act gives power to the jury to say who is to blame, if they choose, and to suggest remedies. I do not think that is of any use at all.

5168. Not as to who is to blame?—No. I am speaking only with reference to mining accidents. Take, for instance, some serious mining accident. An inquiry under the Fatal Accidents Act is held in Scotland; a number of persons, who may be grocers, butchers, or anything except mining men, are brought there as a jury, and complicated questions of management might arise, and I do not think it is for those men to say what ought to be done to remedy the defects. These men, in their ignorance of the true state of matters—and I do not blame them—may make some suggestion which would be far more dangerous than the danger which they sought to remove.

5169. Then, I understand you are not at all satisfied with the present system; but surely it is desirable that there should be some authoritative statement by somebody of who is to blame, at all events?—In Scotland this verdict of a jury goes for nothing, and nothing can be founded upon it. Public opinion might be affected, but that is all.

5170. (*Mr. Ratcliffe Ellis.*) A compensation claim might be founded upon it?—No, I think no action can be taken upon anything which transpires at that inquiry.

5171. (*Chairman.*) Then, it appears to me that the state of things in Scotland, even under this new Act, is unsatisfactory. Surely it is desirable that when there has been a fatal accident, and there has been an inquiry held, the persons who are responsible for the verdict that is given should have the power, and every opportunity should be given to them, of discovering the causes of the accident, and who are the persons, if any, who are to blame?—But the peculiarity of this Fatal Accident Inquiry in Scotland is this, that even when those jurymen give a certain verdict, it means nothing.

5172. You mean, apparently, that they are such incompetent people, that no sensible person's opinion would be affected by their verdict?—No, I do not mean that at all. I am not saying a word against those men, but the point is this: supposing they make a recommendation, or supposing they say an accident was caused by such-and-such a thing, and that the owners ought to do so-and-so to remedy it, they cannot compel the owners to carry out that remedy, and the owners are not bound to do anything whatever.

5173. (*Mr. F. L. Davis.*) Neither can they in England?—Of course, I do not know how your coroner's inquests are held. But the verdict of the jury in this case means nothing. My own idea is that it would be far better if the Sheriff would simply hold the inquiry himself without a jury; it seems to me to be a waste both of time and money for these men to be summoned there as a jury; they have simply to say that a man was killed on a certain day, in a certain place, and in a certain manner—what everybody knows beforehand. Of course I am not referring to the inquiry: the inquiry itself gives everyone an opportunity of bringing evidence forward; the relatives of the deceased may be represented, the mineowner may be represented, and I think in cases the Miners' Union is represented, and there is every opportunity given for all the facts to be elicited. That, in itself, is very valuable. But I was speaking previously only of the verdict.

5174. (*Chairman.*) Then what you mean is that the evidence produced at the inquiry and published is of the greatest possible use, but that the verdict of the jury ought not to be taken into consideration at all?—That is so, and it need not be.

5175-9. That, in fact, people would be very foolish if they paid any attention to what the jury said; apparently you go as far as that?—Well, they might make a very sensible recommendation; I do not say that they might not.

5180. You think, at any rate, that in these Scottish inquiries the truth with regard to the facts of the case is brought out?—Yes.

5181. Therefore, I understand, that, in your opinion, in most cases that inquiry is quite sufficient without any subsequent inquiry?—That is so. I may say that I find, as a rule, that at those inquiries very seldom does any evidence come out which was not already known to the Procurator Fiscal or the Inspector of Mines.

5182. But there might be cases, I suppose, in which evidence might be discovered, for instance, after the inquiry was concluded, or in which something might come to light to throw some doubt as to the fulness and adequacy of the inquiry. In such a case it is, I understand, competent for the Secretary of State, on his own initiative, if he chooses to do so, to order a second inquiry, but no one but the Secretary of State has power to order that second inquiry. Do you think it ought to be left entirely with the Secretary of State to decide as to whether a second inquiry should be held or not, or do you think that there ought to be some means of arbitrating on the matter?—I think that might be safely left in the hands of the Secretary of State. I have no reason, from past experience, to think that it is necessary to act otherwise.

5183. (*Mr. Wm. Abraham.*) We may as well clear up this matter. I do not know where we are now with regard to the evidence. I thought that the trend of your mind with regard to these inquiries was that the investigation would be better if it was made by expert men, of experience in mines—engineers, or workmen of experience?—No, I said nothing to give that idea. It is made before the Sheriff; he presides, and of course

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov. 1906.

there is a jury under the Sheriff, and as a matter of fact, as a general rule the Sheriff has a written out proposed finding, which is handed to the jurymen, and almost invariably the jurymen simply accept what has been written out.

5184. But am I to understand now that, in your opinion, the verdict of those men, whom you think inexperienced and ignorant in regard to mining matters, would be of equal importance to a verdict by men of experience who are experts?—No, I would not say that their verdict was of equal importance.

5185. Then, if the investigation was conducted by experts, naturally the results would be better, or more accurate?—They might be; but it is experts who conduct those inquiries, as it is. The Procurator Fiscal is an expert, in his way, regarding legal points, the Inspector of Mines is an expert, and the owners, if they choose, may have expert witnesses. The representatives of the deceased may bring forward expert witnesses, if they choose.

5186. Yes, it would be expert knowledge placed before ignorant men?—Men ignorant of mining matters.

5187. Then of what value is expert opinion if it is to guide ignorant men?—Expert evidence tends to bring out the real facts of the case; there is no doubt about that.

5188. I thought what you meant when you spoke of those men being ignorant was that you were of opinion that expert knowledge was required?—It was the jury that I was referring to.

5189. It is the jury that I am referring to. Would not the results of the verdict be more likely to be accurate and to be in accord with the evidence if the jurymen were experts themselves, and able to judge as to the value of the evidence given?—That might be so.

5190. Is it not probable?—Yes, it is very probable.

5191. (*Chairman.*) With regard to rescue work, have you any ambulance corps in your district?—We have ambulance classes in many parts of the district.

5192. And ambulance stations?—Not stations. At some collieries they have ambulance wagons of their own, and there are ambulance wagons in certain districts that can be called by telegraph or telephone to any of the neighbouring collieries to take injured workmen away.

5193. Are you satisfied that there is sufficient provision with regard to ambulance in your district?—There are not so many ambulance classes carried on in my district as in many others.

5194. Have you tried to induce the owners or the men to get up ambulance classes?—I have not specially directed my attention to that point.

5195. You think that your district is, if I may say so, a little backward in the matter of ambulance classes?—Compared with some districts it may be.

5196. I suppose you would say it is desirable that there should be ambulance classes?—Yes, I quite agree with that.

5197. (*Mr. Smillie.*) Are you aware that the doctors in many districts do carry on ambulance classes?—I know they do so in many places. I am not prepared to say that they do it everywhere. I know it is done.

5198. (*Chairman.*) Do you know anything about pneumataphors or breathing apparatus?—I have no experience of them in Scotland. I visited the station in Yorkshire, some time ago, to see the operations which were going on there; but in my district, so far as I know, nothing has been done.

5199. Do you wish to make any statement with regard to what you saw in Yorkshire?—No, not particularly. I did not see the latest appliance—that of Mr. Garforth.

5200. With regard to the miners' disease, ankylostomiasis, have you any reason to suppose that there is any sympton of that disease in your neighbourhood?—I do not think there is. There was said to have been one case of a man working in a mine some time ago in the Hamilton district. That man had come from abroad. But I learnt recently that Dr. Louden, the Medical Officer of Health, said that the man was not really suffering from that disease.

5201. Do you find that the miners object to use sanitary conveniences in your district?—I cannot say.

5202. Is there much provision of sanitary conveniences for the miners?—No; as a rule there is no provision of that sort below ground.

5203. With regard to the examination system, how does the Examination Board work in your district?—It seems to work fairly well.

5204. Do you think that there ought to be the same examinations all over the country, or that, as at present, various districts should be allowed to hold examinations of their own?—I think there should be the same examination for the whole kingdom.

5205. Do you think that one examination for the whole kingdom would fit a man to take up a certificate anywhere; or do you think that when a man has got his certificate he ought to be subjected to further and perhaps *viva-voce* examination in any district in which he wishes to work?—My own opinion is that if there is one written examination for the whole kingdom on mining generally, and those who prepare this scheme of questions are drawn from the whole kingdom, they would get a pretty general examination paper which would cover practically everything; and if there were in addition a *viva-voce* examination in each district it would be quite satisfactory.

5206. Do you think that the Central Examination would be sufficient, or that there ought to be a *viva-voce* examination tacked on to it?—I think it would be better. The men from each district would be the better for passing a *viva-voce* examination by an examiner familiar with the district from which they came.

5207. Familiar with the district in which they were going to work, I suppose?—Yes.

5208. I suppose you would say that the Central Examination ought to be conducted on the principle of every man being obliged to qualify in certain subjects, and that it should not be sufficient for a man to get a maximum number of marks anyhow—because it might so happen in that case that, for instance, a man might answer no questions about fiery mines, and he might answer all the other questions extremely well, and might get very high marks, and yet he might know nothing either of the theory or practice with regard to fiery mines?—I think he should obtain a certain percentage of marks in each subject.

5209. Have you any views with regard to certificates for managers of metalliferous mines? Do you think it would be advantageous if managers of metalliferous mines were required to obtain certificates?—In my district the metalliferous mines are very few. I have, properly speaking, only one metalliferous mine—a lead mine. The others are all limestone and sandstone, and they are worked much like the coalmines. But I see no objection to a manager of a metalliferous mine having a certificate.

5210. Then, if he had a certificate, would you suggest that there should be only one examination for a certificate for metalliferous mines, or are metalliferous mines so different that you would require different examinations for the different classes of mines?—I am not sufficiently versed in all the intricacies of metalliferous mining to give an opinion with regard to that, seeing that we have so few in Scotland.

5211. It has been suggested that experience in foreign or Colonial mines might be taken in lieu of experience in home mines?—I see no objection to that, provided that there are some means taken to verify the experience in those foreign or Colonial mines. I think that if this were carried out there should be some means of getting the Government of the country to certify the accuracy of the statement of the men coming up for examination. Some safeguard of that sort would probably be necessary.

5212. Also, perhaps, it might be thought proper to provide that a man should not be able to count experience in any mine abroad, but that there might be some certain selected class of mines?—There might be some practical difficulty in supplying that.

5213. With regard to plans, every now and then a disaster occurs, as you know, from defective plans. A new mine is worked into old workings, and flooding occurs; and, according to the plans, the old workings are perhaps some considerable distance from the new ones. But you suddenly strike an old working when you have no business to do so, and the plans show that the old working is in a different place from what it really is. Have

Digitized by Google

you any reason to doubt the accuracy of plans in your district?—Taking them as a general rule, I think they are fairly accurate I have sometimes, in small mines, had occasion to question the plans—perhaps more with regard to the roughness of the plans themseives than the accuracy of them, the plan being made, perhaps, by the manager. But I have no reason to believe, as a general rule, that plans in my district are incorrect.

5214. But do you know as a positive fact that they are all absolutely correct?—I cannot say so; it is impossible to say.

5215. Do you think it would be desirable that no plan should be passed unless it was made by somebody who had suitable qualifications?—There are difficulties which I think it would be hard to overcome. In many cases a young man may be brought up in a colliery and may have never been under a surveyor or passed an examination, but may have simply learned his surveying from some of his superiors there. He might make as good a plan as a man who has passed any test which might be imposed.

5216. Perhaps he might not—that is tne point?—Perhaps he might not. That was the education which I got myself. At one time I had to do all the surveying of the colliery that I was at; and I think I could do it pretty correctly, although I was not brought up under a surveyor. I think it is difficult to lay down a hard and fast rule with regard to that matter.

5217. Then you are not in favour, as I understand, of any surveying qualifications for a man who makes out such mining plans?—It might be advisable to have it so; certainly, on the whole, it might be better. But I do not know whether it is altogether called for.

5218. If you have any reason to doubt the accuracy of plans of a mine which is at present working, I suppose you can always go down there and look round for yourself?—Certainly.

5219. And although you have not surveying qualifications, I understand you would be competent yourself to make plans and to verify plans?—I believe I could do it. I have not done anything of the sort for 30 years or more; but I believe at the present moment I could survey sufficiently to verify any point in a colliery. But certainly, in such a case as that, it would be better to get someone else to do it.

5220. (*Mr. F. L. Davis.*) The royalty owner's surveyor, or someone on behalf of the royalty owner, I suppose, checks the colliery plan, does ho not?—Yes; in a great many cases in my district the landlord's surveyor or mining engineer does the surveying twice a year, and the mineowner himself, through his surveyor, does the surveying in the other two quarters of the year. They have sometimes two sets of plans in that way.

5221. Then there is a check?—They check one another. Each does it every half-year, and that complies with the quarterly survey required by the Mines Regulation Act.

5222. (*Chairman.*) With regard to plans of abandoned mines, it has been suggested that it should be compulsory to lodge a plan of a mine which has not been worked for twelve months?—I believe that to be a very good idea. I have a written-out list of mines in my district which have been abandoned during the last forty years nearly, and a great many of those mines were said to be discontinued. If a mineowner says, "My mine is only discontinued," it is difficult to prove otherwise. A great many of those plans have never been sent in, and the difficulty would be to get them, and it is no great hardship for a mineowner to prepare a plan and send it to the Home Office after a mine has been discontinued for twelve months. I think it would be a very proper regulation.

5223. You would naturally report to the Home Office that in your opinion the mine had been abandoned, in the sense of being discontinued for twelve months?—I might do so, but where is the proof? The mineowner might say, "I have not abandoned that mine."

5224. At all events, you could report that in your opinion the mine had been abandoned for twelve months, and that no working to your knowledge had been going on in the mine for twelve months?—Yes, I could easily report that.

5225. Then the Home Office might write to the mineowner and ask him to make plans?—I have repeatedly asked them to do so in certain cases, and they have objected to do so.

5226. Then you should get the Home Office to make them do so?—The Home Office has no more power than I have to get them to do it.

5227. Do you suggest there should be power?—Yes, I think there should be.

5228. You think the Home Office should have power to require plans to be made of mines which have not been worked for twelve months?—That is so.

5229. With regard to under-sea workings, have you any experience of them?—There is one mine in my district in Ayrshire—Auchenharvie Colliery—where they are working a considerable distance below the sea now.

5230. Do you think it is safe?—I think so.

5231. Supposing you did not consider it safe, what power would you have of seeing that any requisition you made was complied with?—The only power I should have would be by giving notice under Section 42 of the Coal Mines Regulation Act. I am speaking from memory with regard to that colliery, but I think some ten or twelve years ago a question arose as to whether it was safe on account of being below the sea, and I considered that it was perfectly safe under the circumstances. I think they were bound to leave 40 fathoms between the coal seam and the bed of the sea, and they have more than that where they are working.

5232. Then you have had no experience of any difficulties with regard to working mines under the sea in regard to the matter of safety?—No.

5233. (*Mr. Enoch Edwards.*) Do they take out all the coal?—Yes; they work it longwall.

5234. Do they pack it?—Just the ordinary packwalls. The water that comes into that mine is salt, of course, but there is not much of it. The workings are all dip workings; the coal dips under the sea, and they have not a great amount of water to pump out of it.

5235. Do they get many falls of roof?—Not specially. This is the mine which I referred to in which the safety lamps were taken out after being put in by arbitration.

5236. (*Mr. Wm. Abraham.*) In your opinion it is of the greatest importance that correct plans should be made?—Certainly.

5237. And that plans of mines which have been abandoned for twelve months should be sent to the Home Office?—That is so.

5238. Do you find that in your district accidents from haulage are increasing as the use of mechanical appliances is increased for haulage purposes?—There has been very slight increase during the last five years. I have given the figures. The death-rate from 1891 to 1905 was 0.21 per 1,000, from 1896 to 1900 it was 0.20, and from 1900 to 1905 it was 0.22—not very much increase, but still a slight increase. I think the tendency of putting in mechanical haulage is towards more accidents below ground. I cannot say that I have absolute proof of that, but that is my own impression.

5239. There is another tendency which you spoke of with regard to accidents by reason of the want of timbering. Which is the strongest tendency in your district; is it for the management to order too large a space between timbering, or for men to neglect to put up timber independently of the specified distance?—Perhaps the greatest tendency is for men to delay putting up props in time, and at the same time the officials not insisting upon its being done. I fancy that has as much to do with it as anything else.

5240. You rather divide the causes?—Both are to blame in this respect—the officials in not seeing it done, and the men in not putting up the props in time. When a man takes down a cut of coal I find instead of putting up a prop the moment he has room for it he likes to get his coal away before he begins to put up the props, and accidents happen in that way. At the same time my opinion is that the men do not use their own judgment so much now as formerly in putting up additional props.

5241. Returning to the subject of firemen, I think you said that in your opinion it would be advisable if they were required to make two examinations during

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov. 1906.

the shift?—That is so—at least two. I would not limit them to that. In many cases, supposing a mine is under good discipline, and the men are all putting up their props regularly and at once, you can easily see that the fireman does not really need to go round so often as in a case where there is a difficulty in getting the men to put up the props.

5242. Have those firemen other duties to perform in addition to the ordinary duties of firemen?—They have in many cases, and I think it would be better if those men were more confined to their official duties. In many cases they have to keep the traffic, the tubs, going on regularly. By the rules it is they who put up brattice where required; that is a fireman's duty. But I think it would be advisable that they should be more confined to simply doing statutory duties which are laid upon the firemen.

5243. Then you think that those other duties, such as supervising the traffic and so forth—seeing that trams have got to the men—interfere slightly or largely with their powers of carrying out their statutory duties?—The tendency is in that direction. Sometimes I have found fault with a fireman for not making his inspection during the course of the shift. He will say, "There was a fall in the main road, and I had to go and get it removed," and that sort of thing. Sometimes those other duties come in the way and prevent him. Of course, the fireman ought not to allow anything to interfere with his statutory inspections, but as a matter of fact sometimes other work does interfere.

5244. With regard to prosecutions, do you prosecute anybody without first obtaining the consent of the Home Office?—No.

5245. What powers do you consider you have to enforce your recommendations in cases of emergency? Supposing in visiting a colliery you see that it is necessary, for the safety of the colliery and of the men, to substitute locked lamps for naked lights, what power have you to do it? Have you any?—Of course we first of all request them to substitute the one for the other. If they object, then the only way that there used to be was to go to arbitration over the matter, and we did that on several occasions. In Scotland it was a long and tedious business, but it had to be done, and it was done.

5246. Supposing the mine and the miners were in immediate danger?—If they were in immediate danger I would request them at once to stop operations.

5247. Supposing they said, "No"?—I do not think in any case of that sort they have ever refused to do it. Of course that is an extreme case, and I take care not to make such a demand unless I have good reason to do so.

5248. (*Chairman.*) But surely, in a case of that kind the mineowner or the manager might be prosecuted for manslaughter, if you told them that they must stop the working of a mine at once, and they refused to do so, and anyone was killed in consequence of working going on?—Yes, he might be.

(*Mr. Wm. Abraham.*) Under what Statute?

5249. (*Mr. Ratcliffe Ellis.*) Under the Common Law?—Yes, the Common Law.

(*Mr. Wm. Abrahams.*) But we have had cases before us in which the Mines Inspector has strongly recommended the use of safety lamps instead of naked lights, which recommendation was disregarded, and afterwards an explosion took place. I ask you whether you have any power to enforce your recommendations on an unwilling owner?—If I consider that he has broken General Rule 8, with regard to safety lamps, I can prosecute.

5250. Quite so, but while you are waiting for that, an explosion might take place?—Yes. If I say to an owner, "You must withdraw the men at once," and he refuses to do so, I cannot take any further steps at once. I cannot send a policeman to prevent the men going down the pit in the morning. I have no power to do that.

5251. Or, even if you write him a strong letter asking him to use safety lamps, or strongly recommending the use of safety lamps instead of naked lights, have you any power in that case?—That gives no more power.

5252. That is my point. I do not wish to labour it. You are in favour of workmen's inspections?—Certainly.

5253. What class of men are generally selected to do that work in your district?—In a few cases which I have known, it is generally workmen from the colliery concerned itself—the colliery that is going to be inspected.

5254. Are they the best class of workmen?—I really cannot say. They are workmen.

5255. All you know is that they are simply workmen?—Yes. I presume the miners themselves would select the best of their fellows to do that sort of work.

5256. Have you seen some of those reports being used at inquiries after accidents?—Do you refer to the reports by workmen?

5257. Yes?—No, I have never seen one produced at an inquiry, I think.

5258. In your opinion, as a rule, they are satisfactory reports of the state of the collieries?—Those that I have seen are. I think only once in my experience did I ever get a report from the manager of the mine in which something was found fault with.

5259. (*Mr. Ratcliffe Ellis.*) From the workmen?—No, the manager sent it—he is bound to send the report, if anything is wrong.

5260. You refer to the workmen's report?—Yes.

5261. (*Mr. Wm. Abraham.*) Do you think it would be an improvement in favour of safety if the men, when making the report, should send that report to the Inspector of the district, as well as give it to the manager?—Assuming that all the miners at every mine took up this idea and carried out this rule, we should be continually getting reports. It would do no harm, and it would let the Inspector see what was going on. I see no objection to it.

5262. Do you think it would strengthen your position as an inspector and give you more real knowledge of the true state of the collieries, if it was done?—Yes, certainly, it might.

5263. Do you think, or do you not think, that if you had two or three of such men at your command as another class of inspectors, they would be able to assist you considerably in inspecting a number of collieries which are only partially inspected every year?—I should not be in favour of such an arrangement. I think if the men carried out this regulation, that would be quite sufficient.

5264. How many collieries have you in your district?—Last year there were 252 mines under the Coal Mines Regulation Act, and twelve under the Metalliferous Mines Act.

5265. What, in your opinion, constitutes the duty of a Mines Inspector, and what is he appointed for?—I suppose the principal reason of his appointment is to protect the life and limb of the miner, and for that purpose he must inspect the mines and see that the regulations are complied with, and enforce the regulations on owners and workmen alike.

5266. Is it reasonable to expect him to do so when he visits a mine once a twelvemonth only?—It altogether depends, I think, on what is considered the object of Government inspection. If it is thought that Government inspection should mean personal supervision, such as a manager gives to a mine, then you would require an army of inspectors. If, on the other hand, it is supposed that the object of the appointment of inspectors is to see that the regulations as a general rule are complied with and that everything is being done by the owners, agents, managers and officials to see that the regulations for the safety of the men are complied with, then I would say that the present system is quite sufficient.

5267. But how is it possible for an Inspector to see that the regulations are complied with if he only visits a colliery once a twelvemonth, especially if he visits only a part of a colliery?—Supposing an Inspector were to visit every mine once a week—taking an extreme case—in my opinion the inevitable result of that would be that he would soon be looked upon as the manager, and the men would be looking to the Inspector to do the work of the manager and to have the present responsibility of the manager.

Digitized by Google

5268. But there is a great deal of difference between visiting the mine once a week and once a year?—I put that as an extreme case.

5269. But the other is not an extreme case; the other is a common case—once a year?—Just take my own district for last year. There were 562 underground inspections made. There are 252 mines. That makes on an average one inspection in less than six months, and I think that would be a fair specimen of every year.

5270. What does an "inspection" mean; how much of a mine does it cover?—Sometimes it means the whole mine, and sometimes it means a part. Sometimes it may be only to investigate an accident, and that applies especially to myself. I have all my correspondence to carry on at the same time that I am making inspections, and during the course of the day I find that I cannot always spend as long a time below ground as if I had no clerical work to do.

5271. You have told us that you have made 127 visits to mines. What does "visit" mean? What is the difference between a visit and an inspection?—I should say an inspection more or less complete. In some of those cases I should go through perhaps the whole of the mine, if it were a small one. In other cases I may have taken a section of the mine, or a seam of the mine; it altogether depends upon circumstances.

5272-3. We have heard that large mines have been inspected, or one portion of them has been inspected during a twelvemonth, and that that is taken as a guarantee of the condition of the other portions. I should like to know what is your test, when you inspect only a portion of a mine, as to the safety of the other portions?—Generally, when a portion of the mine only is visited, the plan is looked at before we go down. By this time both my assistants and myself know the mines in the district pretty well, and if there is any reason to suppose that one section, as regards ventilation or anything else, requires looking at more than another, probably that section is visited. We cannot draw a hard and fast rule.

5274. That is to say, you have too much work to do to make a satisfactory inspection of these collieries for your own purposes—to satisfy your own minds?—Well, that depends upon what "satisfactory" means. If we had any reason to think that, say, a specimen of a pit inspected differed from any other part of the mine, then that other part of the mine would also be visited.

5275. Is it not the case that in your district only portions of some of your large collieries have been visited once in a twelvemonth?—There may be some cases, but as a general rule I think our large collieries may be visited up to six or eight times during the year. I do not say every one, but the great majority of them.

5276. Then a systematic inspection of mines does not recommend itself to your mind?—Do you mean going over every corner of the mine, and seeing that everything is right?

5277. Yes?—That would be utterly impossible, unless you have a perfect army of inspectors. I believe it would take at least a week for two workmen to inspect some of our mines—probably longer.

5278. Yes; I think it does with us. We have larger mines. But supposing the men had inspected a mine, and an explosion took place in another part of the mine, would their report as to the condition of the part they inspected be of any value as bearing upon the explosion which took place in another part?—No; it could not bear upon that with certainty.

5279. (*Mr. Ratcliffe Ellis.*) With reference to the question of inspection, you have given us your view that you think excessive inspection might be prejudicial to safety?—It might tend to throw the responsibility of the owners upon the inspectors, and, on account of that, I think it would not be advisable to make inspection increase very much.

5280. You mean to make the inspection so great as to lessen the personal responsibility of the management?—That is so.

5281. With reference to the inspection by workmen, do I understand you would not extend that further than it is provided for in the Act at present?—I think it is quite sufficient.

5282. When you have suggested—or urged, I think you said—upon workmen the desirability of availing themselves of that provision, what exactly was the reply that they made to you?—In one instance where it was recommended that the workmen should make an inspection, the reply was that the inspectors were paid for doing that sort of thing, and they were not going to do their work. It was to that effect. I do not say that was the general view of the workmen, but that reply was given.

5283. Did that convey to you that they were satisfied with the inspector's inspection?—Not necessarily. I think they meant that they did not want to be troubled with making the inspection.

5284. That as you were paid for it, it was your business to make it?—Yes.

5285. With reference to the conduct of the men, in your report I see you call attention to that very pointedly. I am looking at your last Report?—I think every year for a number of years I have made reference to it in my Report.

5286. I am going to refer to page 10 of your Report of last year, where I find there is this paragraph: "Year after year there are more explosions of firedamp in this district than in any other in the kingdom, and when the causes of these explosions are explained, it is not surprising that in the circumstances so many occur. I find that no fewer than 24 of the 48 non-fatal explosions were caused by contravening the regulations," and so on. Then you go on further to point out that there is not that amount of care on the part of the workmen and firemen which you think necessary for satisfactory discipline?—Yes; that is so.

5287. You also use the term that there was almost defiance on the part of the men, and that they would not observe the regulations?—That is so. Their actions prove that.

5288. Do you suggest any remedy for that?—The principal remedy, I think, is to try to get miners, from the day they enter the mine—or, if you can, go further back than that—to have a proper idea of obedience to the regulations. That in itself would do a great deal to prevent a number of those accidents.

5289. But if there is that spirit of defiance on the part of the men, no amount of legislation would secure safety, would it?—I mean, that is, if it is continued; but I had reference, in writing those words, to the future—to the training-up of the next generation of miners, as it were.

5290. You would not suggest with these miners now who are defiant that wholesale prosecutions would do any good?—I believe it would—that is if, in spite of the regulations being pointed out to them, they still continued to break the regulations. Then, I say, there is nothing for it but stern measures by way of prosecutions.

5291. I see amongst the accidents in your Report there are 31 cases brought before the magistrates for negligence in timbering?—Yes.

5292. And there are 23 for taking tobacco and pipes and matches down the mine?—Yes.

5293. Take the last case of taking tobacco and matches down the mine. Are the men searched?—They are frequently searched.

5294. There is no authority for that?—Yes.

5295. Where?—In the Special Rules.

5296. But not in the Act of Parliament?—No; not in the Act of Parliament.

5297. Would you refer to the rule authorising the search—Special Rule 105: "The manager is empowered to search the pockets and clothing in the mine of any worker employed therein, when and as often as he may think proper, and, in the event of anything being found in such pocket or clothing, or in the apparent keeping of any worker, which, in the opinion of the manager, is calculated to endanger the safety of anyone employed in the mine, or is an apparent infringement of any of the Special Rules, to take possession thereof, and detain such worker until he can be given into custody." Would you suggest

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov. 1906.

that should be made a General Rule?—Yes; I think it might.

5298. I see there are two cases here of prosecutions for having a safety-lamp within the swing of his pick, and also for having his lamp within the swing of his hammer?—There is a Special Rule bearing upon that, Special Rule No. 90:—"Every person using a safety-lamp shall take proper care of it, and shall not hang it within the swing of any tool."

5299. That you provide for by a Special Rule?—Yes.

5300. That is a very desirable rule?—Certainly.

5301. Is that one which you would make a General Rule?—I think it might be made one, or some rule to that effect. I notice in Mr. Hall's district there is even a more stringent regulation on the same point.

5302. In connection with your prosecutions, does the Procurator Fiscal communicate with you before he commences a prosecution against a workman?—No. As a rule, the first I know of prosecutions is that I receive from the Home Office a form filled in by the Procurator Fiscal, which he submits to the Home Office after any prosecution. This is made by arrangement. If a manager or owner takes proceedings, he is bound, by the Coal-Mines Regulation Act, to send me notice of the result.

5303. I understood you to say a coalowner could not take proceedings?—That is so.

5304. The coalowner who desires to take proceedings against a workman has to communicate the facts to the Procurator Fiscal?—Yes, or the local police. They may call in the local policeman, and the policeman makes his report and sends it on to the Procurator Fiscal, and he takes the necessary steps.

5305. Is he a lawyer?—Yes, he is a lawyer—he is the Public Prosecutor.

5306. Does he exercise a discretion as to whether he allows a prosecution or not without any communication from you?—Yes, he does. In some cases I have had some difficulty with the Procurator Fiscal regarding those points. I have cases that have come under my own knowledge which I thought should be followed by prosecutions; but the Procurator Fiscal has taken a different view, and has not taken proceedings. These cases are few.

5307. Do you think it desirable that the Procurator Fiscal before refusing to institute a prosecution should communicate with you?—Yes, I think so.

5308. That would be an improvement?—I think that would be an improvement.

5309. Perhaps in any case?—No, I do not think in any case.

5310. If he decides to prosecute that is sufficient; but where he decides not to prosecute you think he should, in the first instance, communicate with you?—Yes, I think so. I may say that I have received serious complaints from mine-owners of men whom they thought had been guilty of some infringement of the regulations. They have sent notice to the Procurator Fiscal, and nothing was done, and they complained that they had a difficulty in enforcing discipline. I cannot say that I knew all the details of those cases, but I have had complaints of that nature given to me by mine-owners.

5311. Supposing the Procurator Fiscal refuses to prosecute, can you prosecute?—The position is this, if I thought that a Procurator Fiscal ought to prosecute I should make inquiry into the case, and I would then communicate with the Home Office, and by arrangement the Home Office would then communicate with the Crown Office, and the Home Office and Crown Office would settle between them what should be done.

5312. Is the Procurator Fiscal supreme?—No; he is under the jurisdiction of the Crown Office in Edinburgh. In the event of differences arising, they are referred to the Home Office and the Crown Office in Scotland for adjustment.

5313. Supposing the Home Office thought there should be a prosecution, still the Procurator Fiscal can refuse to prosecute?—The Procutator Fiscal is under the Crown Office in Edinburgh, and he would be guided by instructions from Edinburgh in that respect.

5314. There may be cases, you think, where a prosecution ought to take place, but is refused?—There may be.

5315. Now with reference to your powers, do you want any greater power than you have got now as an Inspector?—No, I do not think so, as a rule. I do not think an Inspector should have too much power.

5316. Have you got enough at the present time?—Well, broadly speaking, I think we have.

5317. With reference to these firemen, are they usually men with a second-class certificate?—No; some of them are, but as a rule they are not. As a rule they are simply what you may call oncost men. They begin their work in the mine as roadsmen, men directly under the control of the manager, and after being a roadsman a man may be promoted to be a fireman; but as a rule, I do not think they are taken from amongst the miners themselves.

5318. Nor is it necessary under the Act of Parliament for a fireman to have a second-class certificate?—No.

5319. Do you think that should be required generally?—They would not be the worse for having it, but I do not think it is necessary to make it compulsory.

5320. Is it usual or unusual, or exceptional for a fireman to have a second-class certificate?—It is not usual. It is exceptional.

5321. You did not think they reported in their Report Books the state of the roof as they ought to report it?—I believe that as regards the presence of firedamp it is pretty faithfully reported, although cases do occur in which we have found fault with small quantities of gas not being reported. As regards the reporting of dangerous roof, I say the reporting is practically ignored.

5322. In the form of the Report Book there is a printed place for firedamp, for the presence of gas?—There is.

5323. Is there any printed space for the condition of the road?—There is for the roof and the sides.

5324. What is put in there, "safe", or nothing at all?—Generally "good." They are very fond of using as few words as possible in the reports, and they may say "Ventilation good", but in many cases they leave the other thing simply blank.

5325. Do they not put any return whatever in the space for the condition of the roof and sides?—It is very unusual.

5326. Are they not required to do that?—Yes, they ought. They are bound by the rule to state the condition.

5327. General Rule 4 says: "A report specifying where noxious or inflammable gas (if any) was found present, and what defects (if any), in roofs or sides. That has to be reported"?—Yes, that is so.

5328. I understand if you find "good" or "safe," or something written, it is all right; but when you find the space blank altogether, then that is an offence against the Act?—That is so. If a man finds a roof bad and does not report so, there is no doubt there is an offence against the Act.

5329. Is he not bound to report something about it, either good, bad, or indifferent?—No. I think this rule specifies that if he finds defects, then he must state so; but if he finds no defects he is not required to state so.

5330. You may be right?—The words "if any" are in brackets.

5331. Would it be an improvement if he had to state the condition?—It would. It would put something definite upon him, either to state whether it was good or whether defects were found.

5332. Your reading of the rule is, that he is not bound to report in any case, except defects?—That is so.

5333-5. "What defects (if any) in roofs or sides, and what (if any) other source of danger were or was observed." You think it might be an improvement if he was not only required to report defects, but to report the condition?—To report the condition specifically, to state in the report what he found with regard to the ventilation and what he found with regard to roofs and sides.

Digitized by Google

5336. (*Mr. Smillie.*) Is it not a favourite entry in the book, "All in good order"?—That is often printed, and I object sometimes to the colliery publishers who make up those books when they send them to me for my views. I say now he should leave this blank, and leave the man himself to state what he found; but they say some of the mineowners do not want that. Of course, I cannot compel that, because there is a space left below for putting in defects if they find any.

5337. If they do not put in any defects if you find "All in good order," and signed by the fireman, you take it that everything is right?—Yes.

5338. (*Mr. Ratcliffe Ellis.*) Do you think the Special Rules in your district are sufficient?—Yes, generally speaking, I think they are.

5339. The only addition to General Rule 4, except with reference to this report book, that you would like is this. You think there should be two inspections during the shift, and that would meet your views as to inspections by officials?—That is so, at least two inspections. I would not limit them to two—they may have more if they like.

5340. Now as to wages, you said the firemen were not paid satisfactory wages?—That is in many cases. I would not like to say in all. I know in a great number of collieries the fireman is paid a wage inferior to that of the working miner.

5341. What is he paid?—Of course, the miner's wage varies considerably, as you know. If the wages of the miner go up very high, the wages of the fireman do not go up so high in proportion.

5342. What do you suppose is the usual?—At present 5s. 6d. is the recognised standard miner's wage. I think I am right in saying that, Mr. Smillie?

(*Mr. Smillie.*) Yes.

5343-4. (*Mr. Ratcliffe Ellis.*) Does he work when the pit is not winding coal?—The fireman has to go down early in the morning, but, as a rule, he goes away before the pit is stopped.

5345. Does he work six days a week?—Generally, although in cases where they are working only five days a week the pit is idle on Saturday. That is only in some cases. Generally there is plenty of oncost work to keep them going.

5346. Although the hewer may be only working a clear four days a week, the day wage fireman gets six days work?—He gets five or six days unless they throw off the colliery in very bad times. For economy's sake they often have nobody below ground.

5347. With reference to accidents, you had some accident from electricity?—Yes.

5348. Have you any suggestion to make as to any improvement in the Electricity Rules that were established last year or the year before?—I do not know that sufficient time has elapsed yet for me to be in a position to say so. I cannot say at present that I have anything to suggest by way of improvement.

5349. One of your accidents, I see, was from the breaking of a cable?—Which year was that?

5350. That is in the last report you made?—There was one man killed by a coal-cutting machine working electrically, by getting a shock from it.

5351. This was where the fall of the roof cut the cable?—That was not a fatal one.

5352. It was in Gartshore No. 2 Pit, Dumbartonshire?—There was an explosion caused by that.

5353. The fall cut the cable, and the resulting electric spark ignited some gas, which was brought down by the fall?—That is so.

5354. That may happen at any time?—Yes. It was a most unusual thing for the fall to take place and the gas to be given off and the cable cut at the same instant, and at the same time for two men to be standing within a few yards. That combination is not likely to occur often.

5355. That is a state of things you could prevent?—Unless you take the electricity out of the pits altogether I do not think you could prevent a thing of that sort.

5356. (*Mr. Smillie.*) Where was the cable, on the roof or the pavement?—The cable was slung up; it was not quite to the roof.

5357. (*Mr. Ratcliffe Ellis.*) Two feet above the floor?—The cable was concentric, with a current of 350 volts, and was suspended 2ft. above the floor by means of hemp slings nailed to props.

5358. (*Mr. Smillie.*) Was it not an armoured cable?—It was a concentric cable. I am not sure about it being an armoured cable.

(*Mr. Ratcliffe Ellis.*) It is a moot question whether armoured cables are safer.

(*Mr. Smillie.*) Certainly safer in the case of a fall.

5359. (*Mr. Ratcliffe Ellis.*) From your experience of these Rules, are they sufficient, as far as you know?—Yes.

5360. Then with reference to watering, have you considered whether it is advisable to take any steps to prevent dust going down the pit?—That is not a moot question, so far as my district is concerned. The coal is not very dusty. In some cases there is dust; but, I think, that we are not troubled with dust going down the downcast shaft from the surface.

5361. Now, with reference to ventilation, General Rule 1. You think that there ought to be, so far as gas is concerned, some standard of ventilation as to what should be adequate ventilation?—Yes, the condition of the moving current.

5362. I gather from you also that where there is no gas at all you still need some amendent of General Rule 1, because you complain that there is not sufficient air in cases where there is no gas?—It is difficult to define, as I said, what an adequate amount of ventilation is. Again, it is difficult to suggest how that could be amended, because there are so many different things to take into account that it would be difficult to specify what was comprised in adequate ventilation.

5363. General Rule 1 is the Rule under which you get penalties, and it has to be observed as far as reasonably practicable?—That is so.

5364. You will agree that there might be cases in which it was absolutely impracticable to at all times and at every moment secure such an amount of ventilation as might be sufficient to render harmless the noxious gases?—Those words "reasonably practicable" would cover all cases of that sort.

5365. If you put as a standard of ventilation in Rule 1, that wherever you find a cap on the lamp in the air current, that must be evidence of inadequate ventilation, then you might have unfair convictions. You might have a man convicted where he could not prevent it, where it was not reasonably practicable to prevent it?—Supposing in an airway, for instance, they prevented one-half of the ventilating current going round the mine, a cap might appear in a few minutes that had not been seen for years or months before; it would be unreasonable to take proceedings under such circumstances.

5366. If you had this Rule altered in this way, and proceedings were taken, they would be successful?—I think again "reasonably practicable" would cover that.

5367. Not if you make the standard of ventilation a cap on a lamp. Could you not leave Rule 1 as it is and stiffen up General Rule 7, which provides for the men being withdrawn from the pit, and which is the Rule for safety?—That would meet the point.

5368. You would approve of leaving General Rule 1 as it is?—With that proviso in General Rule 7. I think that is admirable.

5369. That would meet your views?—Yes.

5370. Now, with reference to safety lamps. You have had cases in your district, I gather, in which Rule 8 would apply. "In any place in a mine in which there is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous." In your view you have had those cases?—We have had those cases.

5371. Have you taken any steps to compel the use of safety lamps in those cases?—Yes, I have pointed out this Rule, and required the owners to put in safety lamps, and they have done so in some cases.

5372. Have you had occasion at any time to prosecute under that Rule?—I do not know that it has ever gone the length of prosecution.

5373-4. It has not been necessary?—I think not. So

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov. 1906.

far as I remember I do not think I have had a prosecution under that head.

5375. What is the objection made to putting in safety lamps, both from the employers' point of view and from the men's point of view?—The employers' point of view is that it increases their cost, as a rule, as I stated before. It is understood when safety lamps take the place of naked lights that 2d. per ton has to be put on the hewing price of coal. That is one objection. Then the mineowner has also to meet the expense of providing the lamps. When they use the naked lights the miners provide their own lamps and oil. The supposed inconvenience is another reason. Then, on the part of the miners the objection is the lessened light. I think this is the principal objection on the part of the miners, and it is sometimes urged that it increases the danger, but I do not believe in that, and there is no proof that such is the case. On the other hand, I believe that where safety lamps are put in, owing to increased discipline in these mines, there are fewer accidents.

5376. With reference to the view that safety lamps increase the danger, I suppose that is because a man cannot make the same examination?—He cannot make the same examination of the roof.

5377. As he could with a torch?—But to meet that objection, I say that if a man cannot see the roof he is more inclined to tap it, and, if there is any doubt, to put up props, than if he relies on his eyesight with a better light.

5378. Now, as to shot-firing, do you use electricity generally?—Not generally; in some cases.

5379. For firing shots you use fuses?—Fuses.

5380. Have you any opinion to offer as to any particular character of fuse that is not safe?—Do you refer to any special kind of mine.

5381. I want to ask you first about fuses generally?—I do not think those squibs that a number of miners use are a very good method. Accidents frequently happen from them going off prematurely. I think a tape fuse is much better. Formerly there used to be straws, but I think these are things of the past. I have not seen a straw in a coalmine for a long time.

5382-3. (*Mr. Ratcliffe Ellis.*) There has been a large increase in recent years in the number of shots fired?—Yes.

5384. Why is that?—I think the miners can put out more coal per man by the use of explosives.

5385. It is easier?—Formerly, I recollect, the men used to hole their coal, and shear it down the side with the pick, and would have three or four wedges, and drive them in with a mell, as they call it, that is a hammer. Those things are almost of the past now. Gunpowder, or an explosive of some kind, takes the place of this method of bringing down the coal.

5386. Do you use permitted explosives generally in Scotland?—Where they are required, and in accordance with the Explosives Act.

5387. There the Home Office can make any Regulation they like as to the condition under which they shall be used?—They can.

5388. Now, about timbering; you have not seen any great improvement, you say?—I am sorry to say that hitherto it has been a great disappointment that there has not been an improvement.

5389. You agree that the workman, the man who is there constantly, is the proper person to do the timbering, for safety?—That is so.

5390. He constantly has his place under observation?—He is the man, if he will do his duty, to put up the props. He is the man whose life is at stake, and he is always there, and he is the right man to do it.

5391. There were a good many prosecutions on the Rule?—Yes, a good many.

5392. There are thirty-one cases of neglecting to do the work of timbering. Do you think General Rule 21, with reference to timbering, is better than the new Special Rules?—No, for this reason: General Rule 21 is indefinite. There is nothing definite to go upon there; there is simply a broad statement that the roof and sides shall be made secure. The timbering Special Rules are definite.

5393. They are detailed, rather?—They detail what is to be done, how far apart the roof supports will have to be.

5394. Mr. Robson told the Commission as he got older he began to think Rule 21 was better left alone than elaborated by the Timbering Rules?—I do not agree with that opinion.

5395. You do not suggest that the work could be done by any single man. It would want a great number of men to supervise the timbering and see the collier put the props up where they were necessary. He would not have to leave the place for very long, would he?—I do not understand.

5396. The mine worker, you say, is the man who would be constantly in the place, and having it under supervision, would be the proper man to put his timber up?—Yes.

5397. If you are the man to see he does that, you would have to be there all the time?—It all depends upon the state of discipline in the mine. If the men are well disciplined, one or two inspections a day might be sufficient, but if the men are not well disciplined, and there is a difficulty in getting them to comply unless there is a man standing with a pistol over them, more visits would be required.

5398. I do not want unduly to bring in the commercial side of this question, but it costs a good deal of money to have these men looking after the men below. That is unremunerative labour?—Yes, from a commercial point of view.

5399. If the colliers did their duty that would be unnecessary?—To a great extent it would be unnecessary.

5400-1. In the North of England the system, I believe, is that the deputy puts the timber up and the collier sees that it is kept up?—I understand so.

5402. The collier has to look after his safety during the time he is at work?—Yes.

5403. You think the men could be disciplined to look after it properly; it is not ignorance, but they will not do it?—That is so.

5404. Then as to the haulage accidents, have you in your mind the provisions in General Rules 14 and 15? General Rule 14 requires: "Every underground plane on which persons travel, which is self-acting or worked by an engine, windlass or gin, shall be so provided (if exceeding thirty yards in length) with some proper means of communicating distinct and definite signals between the stopping places and the ends of the plane, and shall be provided in every case with sufficient manholes or places of refuge, at intervals of not more than twenty yards, or if there is not room for a person to stand between the side of a tub and the side of the plane, then (unless the tubs are moved by an endless chain or rope) at intervals of not more than ten yards." Then Rule 15 provides: "Every road on which persons travel underground where the load is drawn by a horse or other animal shall be provided, at intervals of not more than fifty yards, with sufficient manholes, or with places of refuge, and every such place of refuge shall be of sufficient length, and at least three feet in width, between the wagons running on the road and the side of such road. There shall be at least two proper travelling ways into every steam engine room or boiler gallery." Those two Rules provide that there shall be manholes where there is not sufficient room between the side and the tram?—I think they provide for them whether there is room or not.

5405. Do you think that is not sufficient?—Supposing in a steep incline a man is travelling and tubs are running, and one tub breaks away, and it may be within 20 yards of this man, and he is halfway between two manholes 20 yards apart, that tub will be down on that man like a rocket before he has time to go five yards, and he may be caught.

5406. You think all that has to be provided for is the breaking away of tubs?—That is one source of danger.

5407. Would those two Rules be sufficient except in the particular case of the tub breaking away?—Manholes only provide for refuge to a man from runaway tubs or tubs being drawn at a rapid rate by means of a rope and an engine.

5408. Had you any cases in your last report as to accidents from runaway tubs?—I think there will be some. The first one mentioned last year is at the

Digitized by Google

bottom of page 29: "Going up a cuddie brae with a hutch, the rope broke, and the cuddie or balance bogey ran down and caught him." I think you will find a good many of those accidents are due to that cause.

5409. To the breaking of the rope?—Not to the breaking of the rope, but here is one owing to the breaking of the rope under the second head: "Haulage—run over or crushed by trams or tubs." I think you will find runaway tubs have caused a number of those accidents.

5410. You do not think those two rules are sufficient with regard to man-holes by way of refuges?—They do not seem to be so in practice; but the difficulty is to suggest something to obviate the danger.

5411. You recognise that it might be a considerable expense to widen the existing roads?—Some roads might easily be widened to give more room, and that would be a good thing, but there would be a practical difficulty in keeping up other roads wide enough. It all depends on circumstances.

5412. Have you any suggestion as to what alteration should be made to meet these dangers?—So far as possible I think workmen should be kept off those inclines while the tubs are running—in fact, one of our Special Rules points to that. Special Rule 81 says: "Benchers, hangers-on, or other persons employed in connection with inclined or engine planes shall control the putting forward and coupling of hutches, and the attaching of the chains or ropes thereto. They shall make and attend to the signals, and shall prevent anyone from approaching or travelling on self-acting inclined planes on which hutches are in motion." That is a Special Rule which is meant to deal with one of the dangers.

5413. Do you think it would not be possible to secure safety by regulations rather than by structural alterations?—It would be very difficult.

5414. It would be a great preventive, and considering the impracticability of widening these roads in all cases, do you not think it would be sufficient if regulations were made preventing men going on these roads when the tubs were in motion?—So far as there are inclines we have a Special Rule to that effect at present, but that only refers to self-acting inclines; it might be also applied to dip haulage.

5415. It would be less inconvenience to secure safety by a regulation?—It would be less inconvenience. A number of those accidents are caused at the foot of these inclines. Men who have been congregating there or actually engaged attaching the tubs to the rope get frequently caught by runaway tubs. A block such as I suggested in many cases would meet that danger.

5416. Do you think the existence of blocks to prevent runaway tubs in the regulations would be sufficient to secure safety without any structural alterations of the roads?—In some cases it would. I would not say that you could draw a hard and fast line with reference to that.

5417. Now one question about the winding arrangements. With regard to these falls from the mouthings, is there no regulation to prevent that?—Yes, we have Special Rules which I think, if carried out, prevent such an accident. I refer to the Additional Special Rules 2 and 3, which deal with that point and I think they are sufficient.

5418. Would you mind reading them?—No. 2 Additional Special Rule is: "Where a mid-working of a vertical shaft is not provided with an appliance which constantly acts as a fence, the gate fencing the shaft at every such midworking, being a mid-working in use for the regular passage of workers, or the drawing of minerals from the mine, shall be connected with an indicator in the engine-house, which shall indicate to the winding engineman whether the gate is open or shut, and the engineman is prohibited from moving the cage from said mid-working until the indicator shows that the gate is closed."

5419. That is sufficient?—Since that rule came into force there have been very few of those accidents.

5420. You think if that rule is enforced it is sufficient?—I think so far as that danger is concerned this rule meets the question.

5421. Is there a banksman at each of these mouthings?—There must be at the bottom. We call him a bottomer. He is equivalent to a banksman. It is not definitely required by the rule, but inferentially; I think a bottomer must be employed at all the mouthings.

5422. (*Mr. Smillie.*) Is that the practice?—Yes, that is the practice. He is not constantly there in all cases. There are cases where there are two or three men working, and the bottomer comes up from one bottom to another.

5423. Do not cases occur of a man drawing a load in the night-time and being the bottomer?—One must be appointed the bottomer. I insist upon that wherever I come across it. You must appoint some person of whom you can say, "That man is the bottomer, and no one else may make a signal or put on a tub except under the supervision of that man."

5424. Do you know in practice a dozen men may be employed on the night shift drawing their own materials from the face, each one hanging on his own? Do you know that is done in practice every day?—I do not know of it, and if I knew of it I would stop it at once. In every case of the nature I have come across I have insisted on some man being made responsible for making the signals in accordance with the Special Rules, so that the responsibility for making the signals and complying with the rules can be put upon one person.

5425. (*Mr. Ratcliffe Ellis.*) If you have your rules carried out, the cage stops at this mouthing, and the tubs are pushed in by the collier?—Or by the bottomer. It may be a collier; the banksman, or the bottomer, as we call him, is there to make signals, and the tubs are put on either by himself or under his supervision; so that if there is a man there to make a signal this rule is carried out, and these accidents could not happen. I did not read the other rule, but an equivalent duty is put on the bottomer. He shall not open the gate until the cage is there. There is a double proviso. There is an obligation on the bottomer.

5426. I think that is the next rule?—Yes.

5427. Now, as to inquiries after an accident. It has been said the jury may not be men of experience, and, as you put it, the witnesses who are called are men who know what they are talking about. In your experience of these inquiries, whatever the decision of the jury has been, have all the facts come out?—Yes. I think, as a rule, the facts are all brought out. I had a complaint recently about an accident that had happened more than a year ago, that at the inquiry some facts were not elicited, and I was requested to prosecute the owners for breaking a certain rule. All that I could say was that the inquiry had been held, and that everybody had an opportunity of bringing forward evidence, and the time for prosecution had gone, and no proceedings could be taken. That, so far as I remember, is the only case in which anything of the kind has transpired in my district.

5428-9. If the facts are not brought out it is not the fault of the jury; it is the fault of the people whose business it is to bring the facts out?—That is so.

5430. I think you said that nothing became known from these inquiries, except what the Procurator Fiscal and you knew before?—As a rule, that is so.

5431. I suppose at these inquiries anybody interested is at liberty to put forward evidence. Something might come out which you had not already heard of?—That is so. An opportunity is given publicly to anyone interested to bring forth evidence.

5432. Your comment is that the decision of the jury may be of value or it may not, but the point is that all the facts come out?—Yes, that is so. That is the principal object of the inquiry—that the facts should be ascertained.

5433. If you want to punish anybody, you can do that whatever the jury say?—That is so. A prosecution cannot be founded on anything that comes out of the inquiry.

5434. You have all the facts, and if you choose to prosecute you can prosecute?—That is so.

5435. You say there should be one examination for the whole kingdom? Who would prepare the papers, in your view?—Supposing a representative was sent from each district. They might appoint examiners amongst themselves and other gentlemen, and they could supervise the papers that are prepared.

Digitized by Google

Mr. J. M. *Ronaldson.*

1 Nov. 1906.

5436. Do you know the South Kensington system? Have you seen any of the examination papers with reference to mine-working that are issued by the South Kensington authorities?—I think I have seen them some years ago; but I do not remember them definitely.

5437. In the second class of examinations do you not think it is essential that the man should have a *viva voce* examination?—I think it very important. Some of these men are not accustomed to put their thoughts on paper, and I have known first-rate men I had confidence in being ploughed at these examinations; whereas if they had a chance of speaking, they would be able to satisfy the examiners they had the root of the matter in them.

5438. You would not dispense with a *viva-voce* examination?—It would have to be done locally. I think locally would be best.

plans

5439. With reference to plans, would you look at Section 34 of the Act, which provides that "The owner, agent, or manager of every mine shall keep in the office at the mine an accurate plan of the workings of the mine, showing the workings up to a date not more than three months previously, and the general direction and rate of dip of the strata, together with a section of the strata sunk through; or, if that be not reasonably practicable, a statement of the depth of the shaft, with a section of the seam." As to the correctness of these plans, would it meet your views if the words "made by a competent person," or something of that sort, should be inserted there: "The owner, agent, or manager of every mine shall keep in the office at the mine an accurate plan made by a competent person or prepared by a competent person"?—I think the words of this Regulation infer that it must be made by a competent person; because if it is an accurate plan, then the presumption is that only a competent person could make it.

5440. You think it is good enough as it is?—I do not think that would strengthen the position.

5441. That section requires there should be a plan kept of all mines for your inspection at the mine?—Yes.

5442. When you cannot see at the mine a plan, if the place is abandoned, a plan of the abandoned mine is to be sent to the Home Office?—If it is abandoned, certainly.

5443. So long as a mine is not abandoned, then you can inspect the plan at the office of the mine?—Yes, but that brings in a legal point.

5444. You see what I mean; so long as the mine is not abandoned you get Section 34?—If they say a mine is discontinued, and the office and everything is removed, I do not know how you could call upon them to keep a plan there.

5445. If the plan is not available at the mine for you to see, it is an abandoned mine, or else that Section has been violated. If you go to the office of the mine and want to see a plan, and it cannot be shown to you, there is a violation of that Section?—Does that fact make it an abandoned mine?

5446. That is a question of fact. Under Section 38 where any mine or seam is abandoned, then the plan is to be sent to a Secretary of State. If the plan is not at the office for you to see, under Section 34, the presumption is that it is an abandoned mine, and the plan must be sent to the Home Office?—I do not know about that. A mine-owner says, "I have discontinued this mine"; he removes everything, he has no office, and he goes and lives in another part of the country, 50 miles off. He says, "This mine is not abandoned, it is only discontinued; I am going to resume it some day."

5447. Then how does he comply with Section 34?—He cannot comply with the Section.

5448-51. Then there is a violation of Section 34, clearly. Had this view occurred to you before?—No, this never occurred to me.

5452. As long as the mine is not abandoned, you are entitled under Section 34 to see the plan of the mine. If you cannot see the plan at the mine there is a violation of Section 34, if it is not an abandoned mine. If it is an abandoned mine then it requires that the plan should go to the Secretary of State.

(*Mr. Wm. Abraham.*) Does that mean that the plan represents the state of the colliery five or ten years later?

(*Mr. Enoch Edwards.*) It is the plan of the colliery when it stops.

5453. I understand you to say that there are 250 coal mines in your district under the Act?—Last year there were 252 in operation.

5454. Last year you paid 500 odd visits?—562 underground inspections.

5455. In answer to Mr. Ellis I think you said some of the larger collieries were visited six or eight times?—Yes.

5456. That is in the 560 visits?—Of course that is included in those.

5457. That would leave some collieries not visited at all?—I think there were three mines last year that were not inspected—small mines.

5458. Three mines only?—Yes.

5459. (*Chairman.*) That is stated, I think, in your report of last year?—Yes.

5460. (*Mr. Enoch Edwards.*) You have suggested to several of the Commissioners that you thought a mine was sufficiently inspected if it was inspected once a year?—I do not say every mine. There are mines which we know can be left, I believe, practically without inspection; but others again require to be frequently visited.

5461. There is a uniformity of opinion among the inspectors that one inspection is sufficient?—I cannot say that we have particularly discussed this point. I am only speaking for myself. I am not speaking for my colleagues.

5462. That is rather obvious, I think, to many people who have followed this inquiry. In dealing with the question of discipline you read us some rules as to the power of searching for matches, pipes, and tobacco. The men use tobacco in pits without matches. They eat it?—Yes; they chew it.

5463. How many of the 250 coal mines are worked by naked lights?—I could not say definitely.

5464. How many, about?—At least three-fourths of them; but I am giving it roughly.

5465. For the moment that will serve the purpose I have in view. Where you use naked lights there is no searching for matches?—It is not required; where naked lights are used they may take matches. That rule only applies to safety-lamp pits.

5466. In ordinary practice, is it not likely that many of these matches found on men, if found, are there from force of habit and custom, from the men working at collieries where there is no such rule?—I would like to believe that, but I am afraid I cannot accept that as being always the case. I believe many men, simply through forgetting, take matches in the mine without intending to do so.

5467. You are not inclined to believe any man would deliberately and wilfully take matches in where forbidden?—I do not mean that at all. I believe they take them down deliberately.

5468. I am trying to suggest to you, from the fact that there are there-fourths of the collieries where you can take matches, that it becomes habitual, and if a man changes his pit he may stumble and forget himself?—I have taken matches and appliances for opening lamps, tobacco and pipes, off the dead bodies of men killed by explosions, and I think there is not the slightest doubt that a lot of those are really taken into the mine intentionally.

5469. (*Mr. Smillie.*) Had anybody been to the dead bodies between the time the explosion took place and the time you were there?—I have been along with those who found the bodies, and I myself searched the pockets in the presence of others, and found those tell-tales.

5470. (*Mr. Enoch Edwards.*) That is not the experience of the country generally where lamps are used exclusively—that men are found taking matches?—It is the experience in the part of my district where all the pits round about are using safety lamps for these to be found, and prosecutions have resulted in consequence.

5471. I put it to you that there are districts within

Digitized by Google

the knowledge of some of us here where there is no such thing as a naked light, where it rarely happens that matches are found on a man?—So much the better for that district. I suppose the discipline is better there. I understand your point, and that there may be cases where a man inadvertently, without intending to take matches down the mine, does so. I am quite willing to grant that.

5472. You suggest, I think, that these men should be dealt with by rules in some way or another, and more severely punished for breaches of rules?—Men on whom matches are found should be more severely punished than others, if it is well established that those matches are taken down after repeated warnings. The taking down of those matches must be for obvious reasons—that is to relight a lamp or to get a smoke. Then, if these men are endangering the lives of their fellow-workmen I say they deserve to be severely treated.

(*Chairman.*) I may as well intervene here with regard to Mr. Edwards' point as to men not taking down matches in safety-lamp pits. I see that by far the largest number of prosecutions for this offence in any district is in the Cardiff district, where I believe nearly every mine is a safety-lamp mine. There the average prosecutions are about 50 for 1903, 1904, and 1905—50 a year.

(*Mr. F. L. Davis.*) For matches and tobacco.

(*Chairman.*) This is a list of prosecutions of workmen in each inspection district for contraventions of rules about matches and smoking under the Coal and Metalliferous Mines Regulation Acts during the years 1903, 1904, and 1905.

(*Mr. Smillie.*) It is a very large district.

5473. (*Mr. Enoch Edwards.*) I understood you quite agreed, if a man has matches in his possession, he may have taken them down thoughtlessly?—If he takes them down intentionally he should be punished, but the difficulty is to prove that.

5474. Let me call attention to another part of your evidence. You said, I think, that explosions in your district were due to naked lights?—Practically all the explosions in my district have been caused by naked lights. Sometimes a shot accounts for that, but that is comparatively rare.

5475. I wanted to see, in dealing with this question of matches, if you punish men who take them, because your evidence is that all the explosions in your district have been due to naked lights. What would you do in that case with the proprietors? What would you do? What have you done?—With regard to the explosions?

5476. Yes; explosions due to naked lights. What sort of punishment do you mete out?—If any regulation has been broken, then they are generally prosecuted.

5477-8. Is it possible to have an explosion in a pit without some violation of the present rules?—Yes. I had a case this week, which I investigated myself. I think it was on Monday. It was within the last week. It was a case of gas being found for the first time in a seam, when a man kindled it and burnt himself, not very severely. Gas had never been seen in that seam before, and the fireman had examined it with a naked light, and this miner going to his work kindled the gas. We could not prove any violation of a rule there.

5479. I did not quite understand you when you were answering Mr. Ellis as to General Rules and Special Rules being all right. Mr. Ellis has been trying to persuade you that the General Rules and Special Rules as to collieries are all right.

(*Mr. Ratcliffe Ellis.*) Only the General Rules as to certain points.

(*Mr. Enoch Edwards.*) Those points rather deal with the explosions.

(*Mr. Ratcliffe Ellis.*) Yes.

5480. (*Mr. Enoch Edwards.*) I understood you to say you were satisfied with the General Rules?—With all the rules?

5481-2. With the General Rule dealing with this question of ventilation—Rule 1?—Generally, I agree with what Mr. Ellis suggested about the cap.

5483. I will not deal with the cap for the moment. I will deal with the question that all explosions are due to naked lights, and that you are satisfied with the rules?—I am satisfied with the rule as it stands with regard to an adequate amount of ventilation being constantly produced, and so on. If that is faithfully carried out I think that is sufficient, only I do not defend the action of so many mines in Scotland being worked with naked lights. I say if an explosion has once occurred, for 12 months after that safety lamps should be used.

5484. I think you did assent to Mr. Ellis when he suggested to you that you had under the rules all the power you needed?—As a general rule, an inspector has all the power he needs. There may be certain exceptions.

5485. You have told us there are a number of these collieries in which you would prefer to see lamps?—That is so.

5486. Why do you not use your power?—The power?

5487. If you have all the power that is necessary, why do you not use it?—That is perhaps one of the exceptions with regard to safety lamps—the difficulty of getting them introduced.

5488-9. I am trying to find out what the explanation is. If you have all the power you need, and that is your answer on the notes—that you have all the power you need as inspectors—and you would like to see lamps in these pits as a matter of safety, why do you not use the power you have got?—I say at the present moment I have not power to introduce safety lamps into all the mines in accordance with the suggestion that I make—that one explosion should be sufficient to require the use of safety lamps.

5490. In your judgment, there are a number of these collieries where you think, in the interests of safety, there should be lamps?—That is so.

5491. But you have not the power to enforce them?—I have not the power at the present moment. I would require to go to arbitration in many cases, and even with arbitration I do not think I would get an arbiter to coincide with my views with regard to the putting in of safety lamps.

5492-3. So that you did not mean all you said when you said you had all the power now you needed?—I think I said to Mr. Ellis as a general rule we have all the power we need. I would not like to say absolutely.

5494. In dealing with firemen, I suppose, I may take it it is only a local reference where you suggest firemen are not taken from colliers?—I am speaking only for my own district.

5495. I think the experience generally of the country is that firemen are colliers as a rule, or have been?—I do not think generally they are.

5496. I am surprised to learn these men have no training at the coal face.

5497. (*Mr. Smillie.*) I think the majority have had training at the coal face?—Certainly they may have worked the coal, but I think I am right when I state as a general rule the firemen are not taken from the coal face.

5498. Not taken directly from the coal face; 80 per cent. have been miners at the coal face?—They have not been taken direct from the coal face, and been nothing else but miners.

5499. But your statement would lead the Commission to believe that they had never been at the coal face?—Did I say that? I am afraid I have given a false impression if I did say so.

5500. (*Mr. Enoch Edwards.*) You said, I think, that the majority were roadmen?—They had experience of oncost work before they acted as firemen. I did not mean to give the impression that they had never worked at the coal face. I would amend that statement by saying that they have not been men who have been taken directly from the coal face up to the time of being appointed firemen. That is what I meant. I am sorry if I have given a wrong impression with regard to that.

5501-2. (*Mr. Enoch Edwards.*) Is it correct to say they are paid less wages than the average practical collier?—In a large number of cases.

5503. That is not the experience in other mining districts of the kingdom by a long way. Questions were

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov. 1906.

put to you with reference to the framing of the Special Rules. You said you preferred that Special Rules should be thrashed out between the employers and the inspector rather than the Home Office?—That is if a new code of Special Rules is going to be introduced.

5504. You prefer that they should be thrashed out in that way?—That is so.

5505. Why not with the men, too?—I have no objection to the men being consulted regarding the matter.

5506. They are rules the men are expected to obey?—That is so.

5507. Special Rules have been framed in Scotland. Have you called in consultation the men, or the representatives of the men, with you and the employers over the rules?—That has not been the practice hitherto.

5508. You are aware in many districts in England that has been so?—I understand so. I think it would be a very good thing if the miners were represented in this way—say the owners prepared a proposed code of rules, and that they should have a meeting of the representatives of the workmen regarding those, hear any objections they have, and discuss the matters with them. Then, having heard what they have to say, go on with the establishing of the rules. I would not go the length of saying that the miners should have a final say in what the rules should be, but I think they certainly ought to be consulted regarding them, and that the rules should be discussed with them.

5509. As you know, a great mass of miners work by contract?—Practically all the miners work by contract.

5510. Any rules, therefore, must become a wage question with them?—Not necessarily—not a wage question.

5511. The question of setting timber; is not that a wage question?—That is a matter of safety I say, primarily.

5512. It is a wage question too?—It is a bit of the work which, as a rule, the miner does.

5513. He expects to be paid for it?—It is all taken into calculation in his contract.

5514. So that it becomes a question of wages largely?—From that point of view it becomes a question of wages.

5515. So that you agree to the suggestion that it would be better that, in addition to the inspector and the colliery people, the men should have an opportunity of being represented in framing these rules?—That they should be consulted?

5516. Take them in conference with you, you say?—Have a conference with them, hear what they have to say regarding them, and hear any objections they have. The responsibility of enforcing those regulations is put on the owner, agent, and manager, and the officials, and, as they are responsible according to the Mines Regulation Act for any breaking of those rules, I think they are the people who should finally decide what those rules should be. That is my own opinion.

5517. You know all laws for the governing of society are made by people who represent people and are to be obeyed by the people?—They represent voters.

5518. I suggest to you, in dealing with the question of Special Rules the men are entitled to be heard if they are rules they are expected to observe. You are likely to get observance much more easily by conferring beforehand than by drawing up rules of which they have no knowledge?—I am at one with you that they should be represented at a conference.

5519. (*Mr. Wm. Abraham.*) Is it not a fact by Special Rules the workmen are compelled to see that the rules are carried out?—The Special Rules require the workmen to comply with certain of them.

5520. And to see that everybody else does?—One of our Special Rules provides if any contravention comes to the knowledge of anyone he ought to go and give notice to one of the officials.

5521. They contravene the Act themselves unless they do so?—That is so; that is one of the Special Rules.

5522. (*Mr. F. L. Davis.*) Going on with Mr. Edwards' point, supposing there is a conference between the men and the owners, and the men do not agree to the proposed new Special Rule, would you agree that the whole thing is stopped?—No.

5523-5. Then the owners would proceed to propose the rules in the usual way?—Yes.

5526. If that is so, and you call your conference, and you do not agree, what is the object of having that conference at that period? I do not think you will find the owners will object to having a conference at a later period?—The object is this: The miners might have some well-grounded objection, and if they have a friendly conference with the mine-owners over the question, their objections might be upheld, and the objections might be given effect to.

5527. (*Mr. Ratcliffe Ellis.*) Is not the proper time for that to be done, if they object to the rules when proposed by the owners?—Of course, according to the present law that is so, because any objections the miners make at the present time are sent to the Inspector of Mines.

5528. Is that not the time the miners should be taken into conference, when they object to the proposals of the owners to the Home Secretary?—That is so at present; but I think, before they get that length, if they are proposing new Special Rules altogether, that the owners might have a conference with the workmen.

5529. Supposing that conference is to be a mere debating society, and the owners propose rules to which the men cannot agree, what is the use of the preliminary conference?—I do not know if I have made myself clear. Supposing the men have well-founded objections to some of the proposed rules, then, if these are discussed in a friendly way with the owners, if there is anything in the objections, the owners would be likely to give way to those objections, and withdraw anything that might be obnoxious. Probably they cannot agree, but then in that case things would go on as is done at present under the Coal Mines Regulation Act.

5530. (*Mr. F. L. Davis.*) The position in your district, I have no doubt you know from your own knowledge, is rather different from Scotland generally, and different from what it has been in other parts, with regard to the Special Rules?—As regards consulting the men?

5531. Yes?—It seems to be different. I think in Scotland the mine-owners cannot admit that the miners shall propose the Special Rules. They have taken the Act literally, without going beyond what is specified in the Act.

5532. I pass from that now. Then, as to firemen's inspection, you do not suggest there is anything in the Act which wants altering with regard to the inspection under that rule?—As regards General Rule 4?

5533. Yes. You do not suggest the Act is wrong, or wants altering in any way?—Except the point that I prefer two inspections during the course of the shift instead of one.

5534. The way you put it is that it is a matter of discipline in your districts?—It is a matter of discipline a great deal.

5535. The discipline is rather lax at present?—Yes; I am sorry to say it, but there is no doubt about the fact.

5536. If it comes under your knowledge that these inspections are not as thorough as they should be—have not you had your attention called to this by the men themselves at any time?—I do not think so. So far as I can remember, I have never received any complaint regarding this special point. I am speaking from memory, but I think I am right when I say I have had no such complaints as to the inspection. Perhaps I have had some complaints about some working-place not having been visited, an isolated case or so, but not as a general rule.

5537. I should have thought if it is so general that this inspection is not thorough the workmen themselves would have brought it to your attention?—The thoroughness I refer to is the thoroughness of the examination of the roof.

5538-9. I did not quite understand the point with

Digitized by Google

regard to firemen's wages which Mr. Edwards asked you about. What are they, from your knowledge? Are they paid by the day?—By the day.

5540. Or so much a month as permanent officials?—They are paid weekly or fortnightly, the same as the miners are paid.

5541. The custom differs in different districts, I have no doubt, with regard to that. There is one more word on safety lamps again. Rule 8 gives you full power, does it not, to deal with places where you think safety lamps should be introduced?—The question comes in in Rule 8 (a): "In any place in a mine in which there is likely to be any such quantity of inflammable gas." A difference of opinion can easily arise there as to what constitutes a quantity likely to render the use of naked lights dangerous.

5542. Mr. Edwards put it to you as to whether you should not have, in your opinion, more power than you have at the present time with regard to this particular point of introducing safety lamps. Do you think you should?—I would like if something more definite were here, such as I have referred to—that if an explosion occurs, then safety lamps must go in for 12 months after that explosion. I think that would do a world of good to my district.

5543. Supposing you use your power here, you go to arbitration?—If the case is not comprised in this rule, then arbitration is the only other method of dealing with it open to us.

5544. I understood you to say, in answer to Mr. Edwards, you felt sure in many cases, if you went to arbitration, that the arbitrator would not insist upon safety lamps?—I do not think, as a rule, the arbitrator would be inclined to go as far as I am inclined to go myself. There might be an explosion in a mine in which gas has not been seen for years, and the arbitrator would probably be inclined to say, "That is an isolated case, and it might never happen again. I do not think it is necessary in such a case to put in safety lamps."

5545. If the arbitrator would not allow safety lamps, do you think you ought to have the power of saying that safety lamps should be adopted?—I would not put the power into the hands of the inspector. I would rather put it into the Act of Parliament.

5546. It was the question of your own power I was really speaking of. If you say there are many cases where the arbitrator would not enforce such lamps, I think it would not be fair for the inspector to have that power to enforce them when the arbitrator would not. You do not think that would be fair, do you?—I want some definite basis to start from. There is no definite basis in this rule. If they specified, as I say, safety lamps after an explosion, there would be something definite to go upon.

5547. You would not think it would be fair on the owners that an inspector should be able to enforce safety lamps where, if it went to arbitration, an arbitrator would not?—I do not know that. Generally an inspector knows more about the circumstances of the mines in his district than any person who would be called in to be an arbitrator—generally, I am saying—and he knows from experience what are the results from naked lights, and so on, and possibly he may be a better judge than an arbitrator who is called in. I do not say that would always be the case.

5548. There is the evidence of other people who would have a hearing before the arbitrator, whereas in the case where you decided it they would have no hearing at all. I suggest to you it is not as fair to the owner as arbitration?—I understand what you say.

5549. Will you put yourself in the position of the owner?—Yes, I quite understand.

5550. You do not think it would be quite so fair, do you?—It would not be looked upon as so fair.

5551. Now, as to shot-firing. In your district do you fire many shots in the coal itself?—Yes; in some places they are blasting the whole day long. They do their holing, "grunching" they call it in Scotland, by means of gunpowder in some seams.

5552. Has shot-firing increased during the last few years?—I cannot say during the last few years, but I think, going back 30 years, shot-firing has increased.

5553-4. Is there very much coal-cutting machinery used?—It is increasing every year in my district. Last year there were 1,071,736 tons produced by coal-cutting machines.

5555. What would be the total output?—The total output is 19,417,483 tons. That is not coal; that is everything. Taking coal alone, the figure is 18,172,207 tons.

5556. Less than 5 per cent. by coal-cutting machines?—Yes; it is increasing every year.

5557. Do you think that coal-cutting machinery has any bearing at all on the question of shot-firing—in this way I mean: Are there more shots fired in the coal where machines are used?—No. I think the tendency would be to decrease the number of shots, for this reason: that the coal-cutting machines hole more thoroughly than, as a rule, a miner does with a pick, and a longer stretch of face at the time. In many cases in long-wall working they have no shots fired in the coal at all. In other cases they have to bring it down in what we call stop-and-room working, pillar and stall they call it in the south. Probably fewer shots, on the whole, are required than where the men hole by hand.

5558. (*Mr. Smillie.*) I am afraid you have not got a very good opinion of Scottish miners and of the men in the mines under your charge?—Some of them. I do not say what I have been saying about want of discipline is universal, but I refer to a great number of them.

5559. I am afraid that you have led members of this Commission to believe that they are ignorant, and that there is no discipline amongst them?—I do not think I have said that they are ignorant, but I think I have stated that the discipline in a great many of the mines is very lax.

5560. Have you had any experience amongst the English and the Welsh miners? I mean any personal experience as an inspector?—No, I have been in mines in Wales, but I have had no personal experience of the miners.

5561. So far as your knowledge goes, do you say the Scottish miner has less knowledge than the average miner in England and Wales?—No, I cannot say that.

5562. I may be wrong, but I understood that you attributed the want of discipline to ignorance?—No.

5563. You say they are badly brought up at home?—In many cases.

5564-5. You mean as children?—In many cases they are.

5566. You say there is far more discipline amongst the foreign miners than there is amongst the home product?—I say they are more amenable to discipline; they will do what they are told, as a rule, far more readily than our own Scottish miners.

5567-8. Would I be correct in suggesting that 80 per cent. of the foreign workmen employed in the mines in the West of Scotland do not understand the English language?—I do not know what the proportion may be; it may be that, or it may not, but most of them know a little English. They know what is told them, but there are a great many of them who do not know the language.

5569. I have attended a meeting of 100 of them at a colliery of which two men could only speak the English language. Would you be prepared to admit that?—I think that must be exceptional. I find in going amongst those miners that a good many of them do know the English language, but others again I admit are absolutely ignorant of it.

5570-1. Would you suggest that it would be a good thing for the discipline of the Scotch mines if none of the persons employed understood the English language? Would it lead to bad discipline?—So far as the reading of the rules is concerned I am afraid a great many of the miners do not trouble their heads about it.

5572. When they go to Court charged with an offence they are supposed to understand the rules, are they not?—I am sorry to say they do not.

5573. But the judge at least treats them as if they did?—They can get a copy of the rules if they ask by applying for them, and I say they ought not to enter the mine without knowing the rules.

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov. 1906.

5574. I quite agree with you. Are you aware of the fact that the majority of foreign miners who enter the mines cannot read the rules, and that they are not supplied to them in their own language?—Yes, that is so. The rules have been translated, but I understand a number of them do not understand these rules at all.

5575. So far as you are concerned, you are better pleased with the foreign miners than the native-born people?—I only referred to the one point of their being better disciplined. I think you will find all I said about those men was that they were more amenable to discipline. A number of them, I know, are good workmen. I can say that, but I do not know more.

5576. Do you know whether they have had better training in their youth than the Scotch miners?—I cannot say that. I only infer from the fact that they are more obedient that they have been brought up to obey more than our own Scotch miners have. That is only an inference of my own. I may be wrong, but that is the inference I draw.

5577. Do you think to be brought up to obey amongst a free people is a good thing?—Yes, I think we are all the better for being disciplined, in our youth especially.

5578. I am afraid you have to go to Russia for that. One reason why these people are amenable to discipline is that they have been brought up under the iron heel of a foreign people?—It is possible that may account for their readiness, but I do not say that our own men should be treated in exactly the same way. I say a little wholesome discipline would be good for them when they are young.

5579. Now I want to turn to that part of your report for 1902 in which you criticise the action of the Miners' Unions in paying for the defence of workmen, and in which you state: "It is to be feared that this action on the part of the Union has a tendency to encourage the workmen to maintain an attitude of hostility towards the regulations instead of a tendency to assist in maintaining discipline." You added that to your report which you presented to the Government. Do you think that led the Home Office to believe that the Miners' Union in one part of your district defended men generally charged with a breach of the Mines Act. Do you think so?—I have had no communication with the Home Office regarding the impression that was made upon them at all, so that I do no know.

5580. Have you read Mr. Delevingne's evidence?—Yes.

5581. Have you read his statement to this Commission with regard to your report?—I have read it all.

5582-3. Do you think he at least was led to believe that the Miners' Union in one part of your district defended them?—I saw some reference was made to that.

5584. (*Chairman.*) I find that Mr. Delevigne did not express any opinion. He quoted Mr. Ronaldson's remarks, and said: "The Home Office has no detailed information as to how far that is done, but it desires to call the attention of the Commission to that remark of the inspector as having rather an important bearing on the question of the maintenance of discipline in the mines."

5585. (*Mr. Smillie.*) Quite so. He called the attention of the Commission to it, because it had been reported. Now I want to know exactly what grounds the inspector based his statement on. I think the Miners' Union has been traduced to some extent, and I think it is fair that we should have proof of it from you. You have stated that you have known cases in which the agent of the Union has defended the men. There have been hundreds of cases but not paid for by the Miners' Union. Can you produce one or two cases to this Commission in which the Miners' Union have defended men guilty of a breach of the Mines Act?—That case I refer to of the President of the Miners' Union in Ayrshire when he appeared as a witness defending a workman charged with one of the contraventions. That was a case where the Miners' Union defended the workman.

5586. I am President of the Scottish Miners' Federation. Would you think it wrong if I should appear as a witness in a case where a person was wrongly charged?—No.

5587. You do not know of any case in which the Union defended a workman who was known to be guilty of any breach of the Mines Act or Special Rules?—I cannot say what the Union thought of the case, but if you refer to Mr. Muir, I had a conversation with him. He admitted frankly that the Union did defend workmen. I do not think they paid his fines, and if you notice in my report I state so, but they were at the expense of defending the workman.

5588. You think that defence had gone to such an extent as to justify you in sending a report to the Home Office, and the Government referred specially to the action of the Union in defending men, and to say that it had probably tended to want of discipline in mines. I think that was the inference you drew?—I think I give this as my own opinion.

5589. What percentage of the men under your charge are engaged in the Ayrshire mines?—Do you want above or below ground?

5590. Below ground?—In Ayrshire during the last year there were 10,624 persons employed below ground out of a total of 46,556.

5590*. You have never known of any case outside Ayrshire in which the Union had defended men charged with a breach of the Mines Act?—I do not think any case has been brought before my notice.

5591. How many cases do you know of in Ayrshire?—I cannot tell how many, but the Procurator Fiscal at Ayr, whom I saw the other day, knows of these cases, and he also corroborated what I say, that he has known as a fact that there have been cases in which the Miners' Union defended workmen who were convicted.

5592. Would you say to the Commission, after your long experience in Scotland, and your knowledge of the officials of the Miners' Union, that the Union would defend men if they felt that they had been guilty of a breach of the Mines Act or the Special Rules?—I think that they would hardly do so, but I think the tendency in the men's minds is this. I am only giving you my opinion, and I think I state so in my report. When they think they are being defended by the Union the tendency is for them to think they are being supported in committing breaches of the regulations.

5593-4. Is it your opinion that the Miners' Unions of Scotland would defend workmen who were deliberately guilty of breaches of the Mines Act which might be against their own safety and the safety of the workmen?—I cannot say.

5595. (*Chairman.*) You do not say, in your opinion you have come to the conclusion that the Union would defend cases that are utterly indefensible, but you say the men might themselves consider from the action of the Union that they might possibly take that course?—That is all that my opinion meant. It did not mean a reflection on the motives of the Union at all.

5596. The men might misconstrue the proceedings of the Union and suppose from those proceedings that they would be backed up even although they broke the Rules?—That is so.

5597. (*Mr. Smillie.*) You would agree with me that it would be almost as criminal on the part of an association to defend men charged with a breach of the Mines Act as to be guilty of the breach itself—that is, if the Union knew they were guilty of such a breach?—I think it would not say much for a Union who would regularly do such a thing.

5598. I agree with you. You could conceive a case in which the Union might be justified in defending a man. You have stated so here to-day already?—Quite so. I quite believe that there might be cases of that sort.

5599. I am anxious about inspection under Rule 4. You are well acquainted with the size of the districts which fireman generally in the Scottish collieries have to traverse in their morning visits. You are aware of the extent of them, and some of them are pretty large?—Yes, some are pretty large.

5600. I daresay that you have never taken into consideration the distance they will have to walk if they make a proper inspection of all the roads that require to be walked over by persons during the shift?—They have a long distance to walk if they go through all of them.

5601. Do you think it is physically possible in all

Digitized by Google

cases to make as full an examination as you would like within two hours?—I could not say without taking a specific case and going over it myself and making such an inspection. I would not like to say definitely whether it was too large or not. You may look at a thing on a plan and think a man could not do it in the time, but unless you went over the ground, you would not be in a position to give a definite opinion upon it.

5602. You referred to some of the firemen that were appointed at the present day. The firemen generally are not the best class of workers—that is, there are far more suitable men in the mine you think than those appointed?—I think I meant that the pecuniary inducement to good men is not sufficiently great in many cases to attract the best men.

5603. I think you said that the present class of firemen are not by any means the best men?—I did not say in all cases, but I know that it is so in many cases from my experience of these men and my personal knowledge.

5604. They must be competent persons under the Act?—Yes.

5605. Are they, as a matter of fact, always competent?—In many cases they do not happen to be. I do not consider them competent.

5606. Who is to be the judge of competency?—The manager.

5607. Has the mines inspector anything at all to do with the question whether a person is a competent person or no?—If I could prove a manager appointed an incompetent person I might have reason to take action.

5608. Would you say a person who had been an agricultural labourer and only eighteen months in a mine was a competent person to become a fireman? I mean engaged at ordinary reddsmens' work for eighteen months?—It all depends on the man. That man may make a better fireman than one who has been all his life in the pit.

5609. He might qualify in that eighteen months?—Yes, but it all depends on himself.

5610. Are you in favour of firemen holding certificates of competency?—I do not go that length yet. I do not think it has been proved a fireman should have a certificate of competency. The difficulty would be perhaps the standard of efficiency.

5611. Is it not a very important position?—It is an important position.

5612. Does he not require to have a knowledge of gases?—He does not require to have a very intricate knowledge of the action of gases. A fireman, I consider, should be in the first place an active man, and then an intelligent man, and a man who will insist upon obedience to the rules, and this last point, I think is the most important qualification of a fireman. A fireman should not be afraid to speak to the workmen and let them know that the rules must be observed. There is a great want of this latter qualification amongst many of our firemen. They have been brought up amongst the men all their lives, and they have gone to school with them and to the pit with them, and they find it very hard somehow or other to find fault with the miners, and in consequence the discipline is very lax with many of them.

5613. A part of the qualification would be firmness and determination?—I say that is the one qualification which is of the greatest importance.

5614. Do they not require to be able to distinguish an explosive mixture on a safety-lamp?—Yes, but it does not take much training to know that much.

5615. Would they not require to be able to detect also the presence of black damp?—Anybody can detect the presence of black damp. It is known on the lamp at once. It does not take a skilled man to do that sort of thing.

5616. Would they not require to know from the sounding of a roof whether the stone was good or not?—Yes.

5617. Would they not require to have knowledge of lypes and slips?—Yes, that is all granted.

5618. Would they not require also a knowledge of the best method of timbering to prevent falls? Would you say it does not require much experience to get all that?—No, I say a man who has been in the pit for only eighteen months might prove more efficient as a fireman than many a man who has been in the pits all his life. It all depends upon the man.

5619. I understand that an adequate amount of ventilation means in Rule 1 that gas should not be allowed to accumulate in any part of the mine in dangerous quantities?—That is so.

5620. Do you know any cases in which accumulation of gases has been allowed to remain in the workings of a mine, and have been boarded up and marked as dangerous to the full knowledge of the manager and the fireman?—I have known cases where apparently large bodies of fire-damp have been accumulated in close proximity to the men's working place. There was one case some years ago of this nature, where I called in question the allowing the workmen to work under such conditions. The workmen were working with safety lamps. We had a prosecution over it, and the prosecution failed. It was held that the gas could not be removed by any possible means from the place in close proximity to where the men were working, that the air current could not be taken over there. The case lasted two or three days; it was at Hamilton, and we could not get a conviction.

5621. Have you power under the Act to order withdrawal of the men?—I can only prosecute for inadequate ventilation.

5622. You could not order them to be withdrawn?—I have no power.

5623. You still think you have sufficient power, but you say where there was an accumulation of gas you had no power to order a withdrawal?—It was held this gas was not in the working place or the approaches thereto, and it was beyond my control. I did not agree with the decision, but such was the decision, and we could not get a conviction.

5624. The presence of an explosive mixture is not the only test of adequate ventilation?—No, you must have sufficient fresh air for sanitary purposes. If you do not renew the air the mine will not be healthy.

5625. Black damp and white damp are both very dangerous mixtures which require to be rendered harmless as well as explosive gas?—Yes, that is so.

5626. You might not find a cap on a safety lamp in any part of a mine, and yet there might be poisonous gases?—The cap only refers to firedamp.

5627. The mere getting of a cap or the failure to get a cap on a lamp would not prove or disprove that there was an adequate amount of ventilation?—No, this question of the cap was simply discussed in relationship to firedamp and not to black damp at all.

5628. Do you think the wording of General Rule 1 as to adequate amount of ventilation is sufficient so far as all other cases are concerned—all other poisonous mixtures—I mean that it is strong enough for them?—I think so. Recently I had a prosecution for inadequate ventilation, and we took specimens of the air in the working places, and got them analysed, and produced the results of analysis in Court, and got a conviction for inadequate ventilation.

5629-31. Now with regard to safety lamps—and this is a very important question with us—you say the workmen object very strongly, just as strongly as the employers?—They are both alike.

5632. You say you have great difficulty with both workmen and mineowners in getting safety lamps. The only reason, so far as the workmen are concerned, is because of the fear that they will not be able to earn as high wages?—I did not say that. I think I stated it was found after the lamps were introduced the workmen could hew as much coal as they did before.

5633. You state that, but we know from experience that it is not true?—I am speaking from what I have been told by mineowners.

5634. Mineowners say this when they do not want to give 2d. a ton for putting in safety lamps, but we have the figures. I speak as a man who worked 19 years underground with a naked light and with a safety light. You say the owner has to pay for the safety lamps?—As a rule the owner provides the safety lamp and the oil. In some cases I believe the miner pays a copper or two a week for the oil and for the upkeep, and in some cases if they break a lamp or a glass the men have to pay for it, but gene-

Digitized by Google

Mr. J. M. Ronaldson.

1 Nov. 1906.

rally speaking I think the owners keep up all the safety lamps.

5635. Have you seen any account of a strike which is about to take place at Dechmont Colliery affecting 300 or 400 men with regard to the position and a charge for safety lamps?—I have not heard of that.

5636. The lamps there are all closed lamps, and the men do not object to closed lamps, but the owner has charged 1d. a day for each lamp, and the men are going to strike against that. I do not want it to be taken that it is a strike against safety lamps?—It is a wage question.

5637. Will you tell us why you prefer that miners should buy their explosives from the mineowners?—That is a question of storage. Miners when they get their explosives elsewhere too frequently take the explosives into their own houses. If the owner provides the explosive, and gives it out from a magazine, close to the colliery, then the obvious danger to the miner's family is done away with. Again, the owner has more control of the explosives that come into the mine. If it is a permitted explosive he knows it is the proper permitted explosive that is being used, and, looking at it from that point of view, I think it is a proper plan that the owners should provide the explosive. The workman can get it quite as cheaply from the owner as from anywhere else—probably he might get it cheaper, because under the Truck Act the owner is bound not to make any profit out of selling the explosive to the miner, and on that ground I do not see why the miner should object.

5638-9. You would be against the owner making profit out of it?—Certainly, as prohibited by the Truck Act.

5640. You dealt with the question of manholes. You contended on inclined planes and roads where the trams were drawn by horses that there should be sufficient room at the sides to allow persons passing, if people have to travel there?—If the road will stand it, very well. There are workings where it really would not be reasonable to ask the mineowners to make the roads so wide as to allow that.

5641. There was a point Mr. Edwards did not deal with. He only dealt with inclined planes, and Rules 14 and 15; but those do not provide for persons who tram their own material?—No.

5642. In many of the mines under your charge the men tram their own material for 300 or 400 or 500 yards?—Except, perhaps, in Ayrshire, where the distance drawn is sometimes extreme, there are few cases where they do so.

5643. At Newton they draw 250 fathoms, and at Coalburn Colliery?—In some cases they draw a long distance.

5644. Some roads are very narrow—there is not room to pass by a tram?—That is so.

5645. If one person was going up and another person coming down with a full tram, and he lost control of it, there is no room for the person coming up?—That man is certain to be injured or killed.

5646. In that case do you think some provision should be made for safety?—If possible; but the difficulty is to provide for that, unless you do it by having two roads, one to go up and one to come down. Supposing one man is coming down following another, and the snibble comes out of his hutch, it dashes into the man in front, you cannot help it. It is difficult to get a rule to apply to those cases.

5647. Are you satisfied with the powers under the Fatal Accidents Inquiry Act which you and the employers possess, so far as getting evidence and information?—I think so. There is every facility for getting information.

5648. Are you aware that the Procurator Fiscal is the person who calls all the witnesses?—Yes; and anybody who has a say in the matter is entitled to ask him to call a witness on his behalf or bring witnesses and say they want to examine them at the inquiry.

5649. Does it follow that he will do so?—I have never heard that he refused to do so.

5650. With regard to the sanitary conveniences underground, I think no attempt has been made up to the present time to provide any conveniences for the workmen in your mines?—I do not think so.

5651. Have you found the mines generally in the West of Scotland in a very filthy condition?—Some are and some are not.

5652. Some of them, you say, you have found in a most filthy condition?—In some you cannot see the rails as you walk along them, and you have to put on shooting-boots to keep your feet dry.

5653. There is human excrement also in many cases?—In some places where there is not a good blow of air around the place is smell is rather bad.

5654. The question with regard to ankylostomiasis would have been of great importance to Dr. Haldane, had he been here. It was reported to the Home Office that a case had occurred in a mining district in the West of Scotland?—I think so, and that the man had been taken to the infirmary and treated there by a medical man.

5655. You say now it has been found that Dr. Louden, the medical officer, said that was not a case of ankylostomiasis?—My authority for that is my assistant, who had a talk with Dr. Louden, and he informed me that Dr. Louden told him that this man had not this disease upon him.

5656. Do you know whether or not the mine was situated in the Hamilton district from which the man went to the infirmary?—I think so.

5657. Will you be astonished to learn that it was in the Coalburn district?—That is 14 miles from there, in the uplands of Lanarkshire.

5658. I understand it was at a colliery of Coalburn, so that Dr. Louden could not have any knowledge of it?—I am only giving you what Dr. Louden told my assistant.

5659. The professors in the infirmary, who made a full examination, said that this workman was suffering from ankylostomiasis. He had been a soldier who had come from India and started in one of our mines.

(*Chairman.*) Is the suggestion that he brought the disease from India?

(*Mr. Smillie.*) Yes.

(*Witness.*) He had been a short time in the mine.

5660-1. (*Mr. Smillie.*) He had been a working miner, but he joined the Army and went out to India, and when he came back he was treated at Netley Hospital, but they did not find out what was the matter with him. Then he started working in one of our mines, and he was sent to the infirmary, and the professors who saw him said he was suffering from ankylostomiasis. I was putting that side by side with the filthy state of some of our mines. If the disease broke out there it would be likely to spread among the workmen?—If the evidence is true that this disease requires a temperature of about 60 or 70 degrees, the circumstances of my district are not particularly favourable to it. There is not a very large proportion of our mines, I think, in which the temperature gets up to that. There are some, but they are the exception.

5662. The mine in which this man was employed was not anything like that?—No; it was a shallow mine.

5663. Are you in favour of engine-drivers holding a certificate of competency?—I do not think it is necessary. I think, as a rule, they are a splendid body of men.

5664. You agree with the other inspectors that, as a rule, they are a splendid and steady body of men?—Yes. They are a splendid class of steady workmen, and, whatever other men may be, our engine-men are good men.

5665. I was going to say a few words on the question of Special Rules, but I think enough has been said already. You agree the miners, whose lives are concerned in the matter, should have a voice in the drawing up of Special Rules?—They should be consulted.

5666. (*Chairman.*) I should like to call attention to this circumstance: On the first day's evidence Dr. Haldane said, with regard to this case of ankylostomiasis, which no doubt was the case referred to—a case of a soldier who had come back from India—"It is quite certain he was suffering from ankylostomiasis"?—That may be. I merely repeated what my assistant heard from Dr. Louden, the medical officer of health.

5667. (*Mr. Smillie.*) In Hamilton?—Yes.

Digitized by Google

ELEVENTH DAY.

Wednesday, 14th November 1906.

PRESENT:

Lord MONKSWELL (*Chairman*).
Sir LINDSAY WOOD, Bart.
H. H. S. CUNYNGHAME, Esq., C.B.
WM. ABRAHAM, Esq., M.P. (Rhondda).
F. L. DAVIS, Esq.
ENOCH EDWARDS, Esq., M.P.
THOMAS RATCLIFFE ELLIS, Esq.
JOHN SCOTT HALDANE, Esq., F.R.S.
ROBERT SMILLIE, Esq.
S. W. HARRIS, Esq. (*Secretary*).

Mr. WILLIAM NICHOLAS ATKINSON, called and examined.

Mr. W. N. Atkinson.

14 Nov. 1906.

5668. (*Chairman.*) Your position is that of Superintending Inspector of the Cardiff and Swansea Districts?—Yes.

5669. What is your position exactly with regard to the other inspectors in South Wales?—To consult with and advise them in any particular case or matter.

5670. This position of Superintending Inspector is, I understand, a new post altogether?—It is a new arrangement.

5671. But up to a very recent date you yourself were one of the inspectors?—I was inspector in charge of the Stafford district.

5672. Now, your duty is to supervise or to exercise a general supervision over the work of the inspectors of South Wales?—In the Cardiff and Swansea districts.

5673. From your experience as inspector do you think that the inspection which now goes on is sufficient; do you think that the districts are not too large?—The sufficiency of the inspection depends very much upon the view taken as to what inspection ought to accomplish.

5674. What is your view on that point?—My view is that a reasonable standard would be that all fatal and nearly all reported non-fatal accidents should be investigated on the spot, all inquests attended, all complaints investigated, and all other statutory duties performed. Besides this, there should be as many casual inspections as possible, especially of the worst managed or naturally most dangerous mines.

5675. What do you mean by "as many inspections as possible"?—Do you think it would be desirable that there should be more inspections of the dangerous mines than there are?—I think in some cases there may be room for more inspectors in some of the larger districts.

5676. Then your answer would be that in some of the districts the inspector and his two assistants can cope with the work and that in some they are unable to cope with the work in the way in which you think it ought to be done?—Generally, yes—they are not so well able, at any rate, in the larger districts.

5677. How would you deal with that? Would you deal with that by sub-dividing the districts, or would you give the present inspectors more assistants?—I think the most efficient way would be to have more districts.

5678. Then you say that all inquests should be attended? It is sufficient that they should be attended by the assistant inspectors?—Yes, in most cases—in all ordinary cases; but the ordinary practice is that the inspector who investigates the accident, whether he is a chief inspector or an assistant, attends the inquest. In important cases, of course, they are both at the inquest.

5679. There seems to be a good deal of difference in practice between the inspectors; some of the inspectors are content to attend inquests very much less frequently than their assistants attend them, and some inspectors, on the other hand, seem to consider it their duty to attend more frequently—in the majority of cases, at any rate?—My practice was to divide them nearly equally.

5680. In the absence of special circumstances you would be quite content to send your assistant to an inquest?—Certainly.

5681. And you think it would be better for him to go than you if he knew more about the accident than you did?—Certainly.

5682. Is there nothing else you would like to say to the Commission with regard to the question of official inspection of mines, or any suggestion which you would like to make? For instance, do you think it would be desirable to have a chief inspector or not?—I think that is more a question for the Home Office than for me.

5683. You have formed no opinion on that matter?—No strong opinion.

5684. Nor, I suppose, have you thought what ought to be the duties of a chief inspector, supposing he was appointed?—No, I have not considered the matter. I should like to say that I think the status of the inspectors ought to be upheld and improved, and that the scientific knowledge required for appointment as assistant inspector should be increased.

5685. That the qualifications for assistant inspector should be increased?—I think so—especially his scientific knowledge.

5686. What is the salary of an assistant inspector?—It begins at £300 a year.

5687. Would you suggest that that is enough for a man who is scientifically qualified?—Hardly.

5688. You think it might be increased?—I think it might be increased. I think that if the conditions were sufficiently good the inspectorate would attract the best class of young men, and I am rather doubtful whether it does at the present time. One deterring influence, I think, is the slowness of promotion at present by reason of the increase in the number of assistants.

5689. Lately the number of assistants has been increased, has it?—Not very lately, but it has been increased at different times until there are now more than twice as many assistants as chiefs.

5690. Every mine inspector has two assistants now, has he not?—Yes, and in two cases there are three

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 1906.

assistants; but in one of those cases two of the assistants only act under the Metalliferous Mines and Quarries Acts.

5691. But when you speak of the salary for assistant inspectors being insufficient to attract good men, I suppose they have the prospect of becoming inspectors—most inspectors have begun as assistant inspectors, I believe?—That is so. But the increased number of assistants, of course, reduces the chance of promotion very materially.

5692. The increased ratio of the number of assistants to the number of inspectors?—Yes.

5693. With regard to General Rule 38 as to inspection by men, do you attach great importance to this inspection?—I think it is a good thing, but I do not attach so much importance to it as many people do.

5694. Did you find in your district that it was commonly resorted to by the men?—Seldom or never in the Stafford district.

5695. What do you put that down to?—It is very difficult to say.

5696. Do you think that the men objected to paying the cost of the inspections, or what was the reason?—I never heard that reason advanced, but I think it is possible that it has some influence.

5697. What reasons did you hear advanced?—No satisfactory reason.

5698. What reason, satisfactory or otherwise, did you hear advanced? What did they say? Did you never hear it spoken about?—I have often asked the question why it was not carried on.

5699. What has been the answer generally?—Sometimes that the men had not asked for it, or did not want it.

5700. That the men were indifferent with regard to it?—Yes—indifferent.

5701. That is as much as you could gather—that there was no particular reason why the men should not avail themselves of this power of inspection, except that they were indifferent to the matter, and perhaps did not care to spend any money upon it?—I think those are the only reasons that I can give. When I was in Durham it was pretty largely adopted.

5702. Was there any reason why it should be adopted in Durham, and not in Staffordshire?—This might be a reason:—That at the time the power was conferred the miners of Durham and Northumberland were better organised than in most of the other districts, I think.

5703. Would the prevalence of accidents have much to do with it?—Supposing there was a disastrous accident in a mine, is it your opinion that the men would then begin to think it was time to exercise their powers?—The death-rate in Durham and Northumberland is not a high one.

5704. Is it higher than in Staffordshire?—No, it is lower, and very much lower than in South Wales. It was not on account of the number of accidents.

5705. Then you cannot suggest any reason why the men of Durham should exercise this power and the men of Staffordshire should not, except that the Durham men were better organised?—At the time the power was conferred they did so, and when a practice begins it is likely to go on.

5706. They took an interest in the matter at the time the power was conferred, and organised some sort of inspection by the men?—Yes.

5707. In Staffordshire they did not take any interest in the matter, and did not organise any system of inspection by the men?—If they did at that time it had died out before I knew Staffordshire.

5708. But every now and then, I suppose, the men inspected in Staffordshire, did they not?—Occasionally, but very rarely.

5709. Would that be after an accident?—Not always.

5710. You say you do not attach any very great importance to this inspection, but on the whole you consider it is beneficial. Is that your view?—I think it is a good thing. I think it interests the miners in the question of safety, and has a tendency to keep the officials on the alert, but I do not think it should be relied upon as sufficient.

5711. Do you think it ought to take place at stated intervals, as ofter as, say, once a quarter, or even once a month?—I think the present arrangement is a reasonable one—once a month.

5712. You think that there should be an inspection by the men once a month, and you would desire to see that?—Generally, yes—in large collieries.

5713. As regards the duties of the owners to maintain discipline and to supervise the work in the mine, how far are those duties enforced on the part of the owners by prosecution, and how far by fine, to your knowledge?—Particulars as to prosecutions are published annually, but there are no statistics respecting fines. The practice with reference to prosecuting and fining appears to vary considerably at different collieries. There are probably many more fines than prosecutions.

5714. But is it not the case that all fines by agreement between masters and men are put in a book, and that you as mine inspector have access to that book, and can see how many fines have been inflicted, and for what offences?—Yes.

5715. Did you exercise that power?—Occasionally.

5716. You do not attach very great importance to looking at the fine book?—No, not great importance.

5717. But suppose you found, on looking into the book, that a man had been fined for some dereliction of duty which might have a serious effect on his fellow-workmen, what would you consider your duty to be in such a case; would you consider it your duty to mention the fact to the owners, and to suggest that the man ought to have been prosecuted instead of being fined?—I have done so once or twice. I do not think fines ought to be resorted to for serious offences.

5718. But would it not be well if the inspectors were always to look through that book of fines in order to see for what sort of faults those fines were inflicted, and if they found that fines were habitually being inflicted for very serious offences, surely it would be their duty—as you say you consider it to be your duty—to mention the matter to the owners?—Yes.

5719. Then I understand it would be within your power as inspector to prosecute the owner for refusing to prosecute the men; if you pointed out to the owners that you considered it was their duty, in the case of certain faults committed by the men and certain derelictions of duty committed by the men, to enforce discipline, not by fines, but by prosecution, and the owners refused to take that view, I understand it is in your power to prosecute the owners?—I should be very doubtful of the result.

5720. I refer to Sub-section 3 of Section 51 of the Coal Mines Regulation Act: "If any person who is bound to observe the special rules established for any mine acts in contravention of or fails to comply with any of them, he shall be guilty of an offence against this Act, and also the owner, agent, and manager of such mine shall be guilty of an offence against this Act unless he proves that he had taken all reasonable means by publishing, and to the best of his power enforcing, the rules and regulations for the working of the mine, so as to prevent such contravention or non-compliance." That would be the point, I suppose, that if the Magistrates came to the conclusion, for instance, that the system of fines had utterly broken down, and that the men had gone on infringing any particular Special Rule, then the Magistrate might consider that the owner was in fault in not enforcing the Special Rule by means of prosecution. In that way you would have a hold over the owners, and could, if you chose, compel them to prosecute under pain of having to go before the Magistrates and explain their conduct, and if the Magistrate thought that the owners were in the wrong in not prosecuting they could fine the owners?—When a case comes to one's knowledge before the fine is inflicted one is in a stronger position. If you discover the fine it may be a year after the event, or it may be six months after the event, prosecution is out of the question then, through lapse of time. Even if you discover it within the three months allowed, I should be very doubtful of the result of such a prosecution.

5721. My point rather was that it was the duty of an inspector to look through the fines entered in the book in order to find out what those fines are inflicted for, and if he comes to the conclusion, on looking over those fines, that fines are inflicted for offences for which prosecution is the proper remedy, it would be the duty

Digitized by Google

of the inspector to go to the mine owner and tell him his views on the subject; and also, I should have thought, to warn the mine owner that he, the inspector, might consider it his duty, in the event of fines continuing to be inflicted for that kind of offence, to bring him, the mine owner, before the Magistrate for contravening the provisions of either Section 50 or Section 51 of the Mines Regulation Act?—That would make a much stronger case.

5722. That is to say, if you gave the owner that warning and then found afterwards that he went on fining when he ought to have prosecuted, you would agree with me that it would be the duty of an inspector to bring the matter before the Magistrate, possibly?—Yes.

5723-4. However, have you ever prosecuted an owner for not prosecuting the men?—I cannot recall that I have, but I have told owners frequently that if they did not prosecute a man I would prosecute them.

5725-9. You have threatened them, but you have has occasion to carry the threat into execution?—That is so.

5730. At all events, if they did not prosecute, and you thought it was a bad case, I suppose you would have carried out your threat?—Yes.

5731. What is your opinion as to enforcing discipline by prosecution and by fines? Can you tell us any general rule which you go by?—The only general rule I would suggest would be that serious matters should not be dealt with by fine, and personally I should be glad if fines could be dispensed with, but I see very great difficulties in the way. To prosecute a workman for a breach of rule means taking the officials away from the mine and occupying two or three days of the time of manager, under-manager, fireman, or other officials; and to deal with all the minor offences in that way would be impossible. The danger that I see is that minor offences would have to be passed over; there would be no way of dealing with them except by dismissing the men.

5732-3. Do you find that minor offences are dealt with in that way, by dismissing the men?—No, I do not think so.

5734. With regard to the inspections by the officials of the mine, do you think that they are properly carried out?—In some cases I think the districts are too large. There was a case in Staffordshire last year where a man was killed by an explosion of firedamp in a place which had not been examined by the fireman. The fireman excused himself by saying that he had not time to examine all the places, and that he had asked for assistance which had not been provided. In that case the under-manager was prosecuted and fined.

5735. You consider that there are several districts in your late inspectorate which were too large to be properly inspected?—I have come across them occasionally—I would not say frequently.

5736. Do you think it is so in South Wales, where you are now?—My knowledge of South Wales is not sufficient yet to enable me to say much about that.

5737. You would rather not express an opinion?—No.

5738. Do you think that the inspection under general rule 4 is sufficient?—I think that rule should require two inspections during the shift instead of one only.

5739. You would have two inspections made compulsory?—I think so. That is done in a great many cases, and I think it ought to be done in all cases.

5740. Do you think that the districts are small enough to allow that to be done by the officials who are at present employed?—Yes, I should say so in the majority of cases.

5741. Where that is not so the districts ought to be made smaller, naturally?—Yes. There is another point with regard to this inspection rule. I think that a competent person appointed should not be in the employment of a contractor. The rule prohibits a contractor being the competent person, but it does not prohibit a person in his employ being appointed.

5742. Do you know of cases where contractors' agents are employed?—Yes, in South Staffordshire.

5743. (*Mr. Ratcliffe Ellis.*) Is that on the Butty system?—Yes.

5744. That is a special system, the Charter Master system?—Yes.

5745. Of course the Charter Master system is a different matter altogether; it is a system under which the coal is worked by a contractor, and he provides all the labour?—Yes, he works the pit.

5746. You think that where that system prevails the inspections should not be made by any of his officials?—Quite so.

5747. (*Chairman.*) You say that if a mine is worked on the Charter Master system neither the Charter Master nor a person employed by him should be considered a competent person within the meaning of rule 4 to examine the mine?—I think the Charter Master system is a bad system altogether so far as safety is concerned.

5748-9. I should like to know what opinion you have to offer about that. You have had considerable experience in the working of that system in South Staffordshire?—Yes.

5750. You say it militates against the safety of the miners?—Yes.

5751. What is your reason for considering the system a bad one?—The Charter Masters are men of small capital as a rule. Their chief object is to get the coal as cheaply as possible. They have no permanent interest in the safety or welfare of the mine.

5752-3. I understand that you reported on the Charter Master system, and your report was handed in by Mr. Delevingne?—Yes. The report to a considerable extent is composed of the observations of other inspectors of mines on the Charter Master system. I thought it was advisable to give those statements, for fear that it might be thought I was prejudiced against the system—I have been told that I am prejudiced.

5753-4. I think it is a very useful report. It gives the side of the question against the Charter Masters, and it gives statistics which might be very usefully studied. I suggest that this report should be put in. You have no objection to it being put in as an appendix, I suppose?—None at all.*

5755. Then perhaps we may take it that your views are sufficiently expressed in this memorandum of yours?—I think so.

5756. The Charter Master system, as I understand, is a sort of survival. It only exists now in South Staffordshire; is that so?—Also, I believe, in the West of Scotland.

5757. But I suppose it is a system which is dying out?—It has died out, practically, in North Staffordshire, and nearly so in Shropshire, in my time.

5758. I suppose it would be rather difficult to make it illegal. It is a matter of contract between the owners and persons whom they employ to work the mine. It would be difficult, I imagine, to do away with the Chartermaster system by Act of Parliament, would it not?—I think it would. I should question the policy of trying to do so.

5759. At all events, in your opinion, it is a bad system?—It is a bad system as carried out in South Staffordshire, and one of the worst features is that the officials responsible for the examination of and safety of the mine are men in the employment of the contractor; they are often their brothers, cousins, or relations.

5760-1. Perhaps it would be possible by legislation to prevent the contractors employing anybody for that purpose who is in their pay?—That might be dealt with by an alteration of the 4th General Rule, as I have suggested.

5762. Have you anything more to say about Rule 4? You say there ought to be two inspections during a shift, and that the competent person employed to make the examination should not be in the employment of a contractor?—No, those are my only suggestions.

5763. Now with regard to accidents, Mr. Cunynghame and you made a very interesting report on the Courrières accident. In that case an enormous number of lives was lost owing to the circumstance that

* *See* Appendix XIV.

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 1906.

the underground communications were extraordinarily extensive and the explosion travelled miles and miles underground and killed a large number of persons who were brought into contact with it. It has been suggested to me by one of the mine inspectors—not here, but in conversation—that there ought to be some prohibition in the way of insisting that underground communications should not be allowed to be too extensive?—I think the question of safety should be carefully considered in connection with such communications.

5764. In the first place I suppose the communications are very necessary in the case of ventilation, and it is very desirable to have as much underground communication as possible, in the interest of ventilation, I suppose?—It is, sometimes.

5765. And also, I imagine, in rescue work it is desirable that you should have as much communication between the various underground workings as possible, in order that if one adit or passage is stopped up you may be able to rescue the men by another?—That is so.

5766. So that it would seem to be in some respects desirable that you should have as much intercommunication as possible underground, and if you could manage to stop an explosion with certainty by any other means than physically blocking up adits or passages, that would be the better course?—Generally it would.

5767. I was thinking of the question of having watered zones. Supposing that it was proved to demonstration that, for instance, a very wet zone of 100 yards or 200 yards, or whatever the distance might be, was absolutely impervious to an explosion, would that be a better system than a physical blocking up of the passages?—Yes, I think so.

5768. The question is, I suppose, how far an absolutely wet zone would be certain to stop an explosion. I imagine that it has been pretty well ascertained by various experiments which have been made that it would be almost impossible for a flame to pass a wet zone of 200 yards, and perhaps of 100 yards. That was brought out, I should have thought, in the evidence given before the Commission on Coal Dust Explosions?—No, I do not think it was. It certainly has not been proved by experiment.

5769. You do not think it has been proved by experiment that the flame of an explosion would not penetrate a wet zone of even 200 yards in length?—It has not been proved by experiment, certainly. There have been no experiments made on a large enough scale to do it. It is very difficult to come to any conclusion from what you see in the mine itself; the conditions are not favourable to forming a definite opinion as to the length of the wet or dustless zone which is necessary. The opinion I have formed on such evidence as I have been able to obtain is that probably 100 yards would be sufficient.

5770-3. You think that 100 yards would be sufficient to stop the flame of the explosion; then, of course, the wind caused by the explosion might do a certain amount of damage even beyond the 200 yards?—Yes, but not serious damage.

5774. What you are afraid of is the flame, and if you thought that wet zones could absolutely stop the flame you would be quite satisfied about the matter?—If I was certain of the length necessary.

5775. Yes; for instance, if you were certain that a perfectly wet zone of 200 yards length would stop any explosion of coal dust from going through that zone, you would think that was all that was necessary for the safety of the mine, and that the mere gust of wind which would still go on after the 200 yards would not be sufficient to do any great damage?—I should be satisfied if it were sufficient for the stoppage of the explosion. In some rules made for the working of collieries containing dangerous coal dust in the Saarbrücken district of Germany, dated 1892, a damp space of 50 metres was required on the roads connecting different districts. I do not know what evidence they had to fix on 50 metres. It would not be sufficient to satisfy me. But I am inclined to think that 100 yards would in all probability be sufficient.

5776. The Commission have before them the report* of the visit which you recently paid to Westphalia with Dr. Haldane and Mr. Hall. I notice that at the end of the first section, after dealing with the cost of watering, you say: "Against the cost of watering there are several advantages to be set: (1) There is absolute safety against sweeping dust explosions, such as that at Courrières and those which have often occurred in England, and may still occur at any time in consequence of an accidental small explosion of gas or mistake as regards blasting." You say there is absolute safety?—I think that refers to general watering such as we saw in the German collieries.

5777. It does not refer to zones? You say it has not been proved that a 200 yards zone would confer such absolute safety, but you think that it would provide absolute safety?—It would limit the explosion to the section in which it began. General watering would prevent a large explosion occurring at all. The sectional watering would only at the best confine it to the section of the mine in which it originated.

5778. But would it confine it? That is what I understand you to say has not been scientifically proved. You say there is no scientific proof that a wet zone of even 200 yards would absolutely stop a sweeping dust explosion?—There is no absolute experimental proof at all that I know of.

5779. But you believe it would? You do not think that any sweeping dust explosion could get through a wet zone of 200 yards?—I do not think so.

5780. I do not know whether there is anything else that you would like to say about watering which is not in this report. Is there anything you would like to add?—I think the question is one which requires dealing with in the way of regulations as to watering.

5781. Have you anything to say with regard to improved types of wagons? Do you think any particular types of wagons ought to be made compulsory, or if the mine is properly watered do you consider that is enough?—It is only a secondary question. The tighter the tub the better, of course; that naturally makes less dust, and therefore the dust is easier to deal with. The tubs, or trams as they call them in South Wales, cause a tremendous amount of dust and loss of small coal on the roads.

5782. Then, would you interfere with that system by legislation, or would you consider that the safety of the miners was sufficiently looked after if you had the mines well watered?—If the mines are well enough watered it is of no consequence, from the point of view of safety how much dust comes out of the tubs, but it increases the difficulty of keeping the dust wet.

5783. Is there anything else you wish to say about watering?—It is a very important and very wide question. I think it would be a good thing if some experiments were made on a large enough scale to test some of the questions which are not clear, such as the distance necessary to stop an explosion of coal dust, and with regard to the inflammability of different sorts of dust.

5784. I thought that was dealt with by the Commission on Coal Dust Explosions?—Not experimentally.

5785. You think it has not been sufficiently dealt with by experiments?—Certainly not.

5786. That is the question of the inflammability of different kinds of coal dust?—Yes, and the distance necessary to stop an explosion. The only experiments which have been made on a large scale are those made by Mr. Hall, which were made in pit shafts where no test could be made of the distance necessary to stop explosion.

5787. Then, in your opinion, we are still a good way off knowing all that might be known, and ought to be known, with regard to the question of watering mines, and we could not usefully come to any conclusion yet as to the question of watering?—I think it is possible to come to a very important conclusion now; that is, so far as is practicable dusty mines should be watered. But there are many obscure questions connected with the explosion of dust; for instance, in the new regulations they are making in France they use the term "inflammable dust." What constitutes an inflammable dust?—In very many cases an explosion has been arrested not for the lack of dust, but for the lack of inflammable dust.

* *See* Appendix XV.

Digitized by Google

5788. At all events, you consider that before the whole question of watering could be decided, and before we could put forward any detailed suggestions as to the way in which watering ought to be conducted in mines, there should be more experiments made?—I think it is very desirable that there should be.

5789. But in your opinion the Commission might possibly usefully report in favour of some general system of watering dry and dusty mines?—Yes.

5790. And that there might be, perhaps, some general rule incorporated in an Act of Parliament which would be useful even before the experiments which you wish carried out have been concluded?—That is so. There is a good deal of watering done in South Wales now—more I think than in any other part of the country.

5791. With regard to ventilation, it has been suggested that the first General Rule is not sufficiently explicit. What do you say as to this: do you think that it might be improved in any way, or that it might be made more definite, or more stringent?—No, I cannot say that I see how it could be much improved.

5792. You do not yourself see your way to suggesting any alteration in General Rule 1?—It might be defined that to be harmless the inflammable gas should be diluted to such an extent as not to show a cap. There are difficulties, though, in defining a "cap."

5793. How would you define a dangerous cap?—I think the rule ought to be that there should be no cap.

5794. Whatever kind of lamp it is—that is to say, whether it is a lamp which burns naphtha or whether it is a lamp which burns oil—because a naphtha lamp, I understand, shows a cap more easily?—For practical purposes I do not see how you can make any difference.

5795. Then you say that any perceptible cap ought to be a sign of danger, and the men ought to be withdrawn. Is that your opinion?—Yes.

(*Chairman.*) Rule 7 is the rule with regard to the men being withdrawn. That rule was the subject of a good deal of investigation in the case of the Court Herbert explosion, the inquest in which case was held on the 19th June. I have a report before me of that inquest, but I do not know what Mr. Edwards or Mr. Smillie would say as to whether it is in the least confidential or not, and whether I ought to quote from it: it is a report to the Miners' Federation of Great Britain made by the representatives who attended the inquest in their behalf. Have you you any objection to my quoting from that?

(*Mr. Enoch Edwards.*) No, my Lord.

(*Chairman.*) In that report the representatives of the Miners' Federation come to the conclusion that "There was a breach of General Rule 1, inasmuch as there was not sufficient ventilation as would dilute and render harmless noxious gases"; and "That there was a breach of General Rule 7, inasmuch as we consider the fireman's words 'a small gas found in David Davies Road' do not give 'a true report of the condition of the mine'"—that is to say, that the fireman did not give a true report; and that there was another breach of General Rule 7, because the men were not withdrawn from a part of the mine found to be dangerous. What have you to say to those observations, do you think they are justified?—I have no personal knowledge of the circumstances of the explosion. All I have had to judge by are the papers relating to it, and I made a minute concerning it which was sent to the Home Office. I did not altogether agree with the conclusion of the Miners' representatives.

5796. It seems that a good part of the fault must have rested with the fireman, because he did not give a true report of the condition of the mine—at all events, in the men's opinion. Then do you suppose that this report of the fireman as to there only being "a small gas," whereas, in point of fact, there was a considerable accumulation of gas, according to the view of the Miners' representatives, was due to the fireman not having sufficiently examined the condition of the mine, or do you think he made a mistake?—I should judge that he had examined the place, because he had found the gas, and, having found the gas, he would be able to form a pretty accurate opinion as to the amount of it, and that he was wrong in saying that it was "a small gas."

5797. So that a good part of the blame would seem to rest upon the fireman, and not upon the owners of the mine, in that case?—On that particular head. *Mr. W N Atkinson.* 14 Nov. 190

5798. Then the question as to whether the part of the mine was found to be dangerous or not would a good deal depend, I imagine, on the report of the fireman: if the fireman reported that it was what he called "a small gas" and was of no importance, would it, or would it not, be the duty of the owners to take the men away, in your opinion?—As a matter of fact, I should say the owners had no opportunity of seeing that report before the explosion occurred.

5799. You mean the report of the fireman?—Yes.

5800. That is to say, the report of the fireman was not before them until after the explosion occurred—it followed so quickly after the report of the fireman?—Yes.

5801. With regard to withdrawing the men under Rule 7, do you think that the rule is adequate, or would you suggest any modification?—I do not think I have anything to suggest with reference to it.

5802. With regard to Rule 8, as to safety lamps, are safety lamps employed all through South Wales?—No; they are very largely employed there.

5803. Do you think that they ought to be more largely employed than they are?—Yes. I think that General Rule 8 is a very weak rule, being based on the likelihood of the presence of gas, which is a matter of opinion. A safer rule would be one requiring safety lamps to be used in all mines where fire-damp had ever been found, but mining opinion is not advanced enough for such a rule. All concerned are willing to take a certain risk in order to be able to use naked lights. The rule might be made more definite by requiring the use of safety lamps in any mine in which fire-damp had been found on a given number of occasions in a given period. The question is dealt with in Special Rule 109 of the Cannock Chase Code, a recently revised code of special rules. Rule 109 reads: "The manager shall see that locked safety lamps only are used in every ventilating district (as defined in the Act) of the mine to which these special rules apply, in which an explosion of inflammable gas causing any personal injury whatever has occurred within the previous six months, or in which within the same period inflammable gas has been found in such quantity as to be indicative of danger. This rule shall not prevent the use of naked lights in main intake airways within 200 yards from the pit bottom, or the re-lighting of lamps at lamp stations beyond this distance."

5804-5. (*Mr. Cunynghame.*) Does not this rule somewhat follow the same principle as giving a dog his first bite?—That is so—it is a compromise. It is not the rule that I wanted, but it was the best I could get at the time.

5806. (*Chairman.*) Of course you agree with everyone as regards the construction of lamps, that screw locks ought not to be permitted?—Yes, that is clear.

5807. Do you think there ought to be any special type of safety-lamp recommended, or that the use of a special type might be made compulsory?—No; I would not advise the making of any particular type compulsory. I think there might be some provision for testing lamps.

5808-10. What sort of testing would you suggest?—I think there might very reasonably be a lamp-testing station provided either by the Government or by coal-owners.

5811. You mean a station where types of lamps could be tested?—Yes. I think it would be a good thing if there was such a station. But I would not regulate the dimensions of lamps minutely, as they do in Belgium, for instance.

5812. (*Mr. Cunynghame.*) Is it not the fact that the mines in Belgium are unusually fiery?—They are extremely fiery, some of them.

5813. That may account for the very peculiar precautions which they are taking with regard to lamps in Belgium, whereas a less stringent rule as to dimensions would do in our country?—It may be.

5814. (*Chairman.*) Are those Belgium mines more fiery than any mines in England, or in South Wales?—I think so. They are subject to very big outbursts, some of them.

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 1906.

5815. Have you any knowledge of accidents due to defective types of lamps, and to the want of lamps being properly examined. I will put those two things together?—Not much personally. In the cases of explosions from safety-lamps which I have investigated, I think nearly all of them could be attributed to a defect in the lamp, or to the lamp having been broken. A case occurred last Saturday in South Wales bearing on this point. An explosion occurred where there were five safety-lamps and an electric re-lighting apparatus. Those lamps were all found intact; and, so far as can be judged by an external examination, in proper order. The lamps have not been opened yet, and nothing has been done with them except examining them externally; but, so far as I can see, at the present time, that explosion was caused either by one of those lamps, or by that electric re-lighting apparatus.

5816. But until the lamps have been properly examined, you do not know what the reason of it is?—I cannot say at present. I have read different accounts of explosions which have been attributed to safety-lamps, some of which were said to be in proper order.

5817. Do you wish to say anything more about safety-lamps?—I think those explosions attributed to lamps apparently in good order point to the necessity of some further testing of lamps.

5818. Do you mean a testing of the type? Do you think there is something wrong with the type; or do you mean that there should be a better examination of the lamps before they go down?—I refer to a testing of the type of lamp.

5819. With regard to prohibiting shot-firing during shifts, are you in favour of such a prohibition?—Yes, speaking generally.

5820. You think there might be exceptions?—I think it would be rather a serious matter in some cases. I mean to say, it would greatly interfere with the working of some collieries to prohibit shot-firing except between shifts.

5821. Do you consider that that is a matter which ought to be dealt with by special rules adapted to particular districts? You do not think, apparently, that a case is made out for prohibiting shot-firing during shifts, by Act of Parliament—making it a general rule under the Act of Parliament?—I think it might be done under the Act by defining conditions.

5822. That is to say, that unless certain conditions existed, shot-firing should not be allowed during shifts?—Yes.

5823. Then do you think the conditions would be easy to define. What sort of conditions would you suggest?—It might be in connection with watering.

5824. That if a mine was very well watered you would see no objection to firing shots during shifts?—If a mine was well watered the danger of an explosion might be so greatly reduced.

5825. Or I suppose in mines where safety lamps were not necessary you would not prohibit shot-firing during shifts?—I would not base it on the presence or absence of safety lamps, but on the presence or absence of dust.

5826. Then with regard to simultaneous shot-firing—firing a number of shots together—do you think that practice ought to be prohibited?—I think it is generally prohibited, except in stone drifts, by special rule.

5827. But in stone drifts might it not lead to accidents, because if you have a great many shots fired at the same time is it not very difficult to find out whether all the shots have gone off or not?—No doubt it is more dangerous than firing the shots singly.

5828. Then even in stone drifts you might perhaps put some limit to the number of shots which might be fired at the same time?—Yes. I do not think there would be much objection to fixing a limit as to the number provided that it was a reasonable number.

5829. Have you known accidents happen by reason of simultaneous firing of shots in stone drifts?—Yes. Shot-firing in any case is an operation which is liable to cause accidents. Firing two or more shots at once increases the risk to a certain extent.

5830. Then I suppose naturally, in shot-firing, you would prohibit the use of gunpowder?—It is already prohibited in dangerous mines. There are many mines where I see no objection to the use of gunpowder.

5831. You leave the question of permitted explosives just about where it is. Would you compel the men to buy their explosives from the mineowners?—I think the mineowners ought to supply the explosives.

5832. But do you think the men should be prohibited from getting any explosives other than those supplied by the mineowner?—In mines where permitted explosives are used, certainly I do.

5833. Then how would you see that the men did not take other explosives down the mine. Would you give the mineowners the power of searching them?—They have that power now.

5834. Well, they exercise it, but I am not sure whether they have it?—They certainly exercise it.

5835. Then you are fairly well satisfied with the present condition of things as regards permitted explosives; you think that the testing is good, and that altogether matters are in a fairly satisfactory state?—I think there are several respects in which improvement might be made. It is a question whether the test itself is sufficiently stringent.

5836. You are not sure whether the tests for permitted explosives are sufficiently stringent?—Yes. I think the test might reasonably be made more stringent than it is in some way.

5837. (*Mr. Smillie.*) You say that in some districts by Special Rule the firing of more than one shot is prohibited unless in stone drifts. Will you tell us in which district that is. I take that answer to mean that it is prohibited to fire more than one shot in the coal?—I think it is in Durham, Northumberland, and Staffordshire. This is the rule to which I refer: "All persons engaged in firing shots shall strictly observe the provisions of General Rule 12, and when more than one shot is to be fired in the same place (except in sinking pits and stone drifts) the examination specified under General Rule 12 shall be made before and after the firing of each shot." There is a similar rule in Durham and Northumberland.

5838. You say that that rule prohibits the firing of more than one shot at a time?—It has the effect of prohibiting the firing of more than one shot at a time, except in stone drifts and sinking pits.

5839. (*Chairman.*) With regard to falls of roof and ground, have you any Special Rules with regard to timbering in your district?—The Special Rules with reference to timbering were incorporated in the Special Rules in a similar way in all the districts, I think.

5840-1. What has been the result of those Special Rules, in your experience; has it lessened the number of accidents?—It does not appear to have had any appreciable effect.

5842. To what do you attribute the failure of the rules to lessen the accidents?—They were accepted under compulsion, and in most cases no genuine attempt has been made to reduce the number of accidents by falls. I think the number might be reduced if managers would seriously consider the matter and make and enforce regulations for timbering and packing suitable for the different seams. A higher standard of safety than is now considered sufficient should be established. I do not think either the colliery managers, the officials, or the miners have a sufficiently high standard of safety with reference to falls of roof. The miners run risks, and the officials allow them to run risks which I think should not reasonably be run.

5843. I see the death rate in your late district of Stafford from falls of ground is the highest of any?—South Staffordshire is exceptionally liable to accidents by falls, on account of the working of the thick coal.

5844. Do you think it is advantageous to have Special Rules with regard to timbering? It has been suggested that where you have Special Rules saying that a certain minimum quantity of timber must be put at certain definite intervals, when a man has complied with that rule everybody is perfectly satisfied, and thinks it must be all right because the rule has been complied with. It has been suggested that it might be better to leave the matter to the discretion of the men or the officials who have to look after the timbering?—I do not agree with that view.

5845. You think there ought to be certain definite rules laid down as regards the intervals at which tim-

Digitized by Google

bering should be placed?—I think so. It has been proved what can be done if a determined effort is made to do it by the statistics of falls at Courrières.

5846. There the death rate from falls of roof and side was very low?—It was reduced very greatly by the institution of special systems of timbering.

5847. At the Courrières mine did they employ special people to put up the timber, or did the men do it themselves?—To a large extent the men did it themselves in the working faces.

5848. They were not supervised by special men who were employed to look after that matter?—The firemen attended to the timbering in the same way as they do in this country. They did not put the timber in themselves, but they supervised the timbering and safety generally.

5849. I understand that the practice differs a good deal in English mines; in some places the men are left pretty much to themselves with regard to putting up the props, and in other cases special men are deputed to do that work?—In Durham and Northumberland a good deal of the timbering is done by officials—by deputies; but even there the miners do a good deal of timbering.

5850. Do you think it is best left, as a rule, to the miners themselves, or do you think that they ought to be very strictly supervised by deputies in the matter of putting up props?—They ought to be strictly supervised by deputies and firemen. I do not attach very much importance to the system that the firemen or deputies should themselves set the timber.

5851. Then you have no suggestions to make with regard to precautions, except that the Special Rules should be made more stringent, and that there should be less distance between the props, and so on?—I think a more important point is that the managers, officials, and miners should be more interested in the matter.

5852. How are you going to set to work to make them more interested?—That is a difficult question. Unless the matter is seriously taken in hand, rules are of little use—you may take a horse to the water, but you cannot make him drink.

5853. Would you suggest that they should have lectures and should be instructed in these matters?—Lectures might do some good.

5854. In some places the miners do come and receive instruction of some sort, do they not; there are institutions, and so on, which they frequent. I suppose if they have a lecturer who knows how to make subjects interesting they sometimes would go?—I suppose so.

Mr. W. N. Atkinson.
14 Nov. 1906.

5855-6. (*Mr. Enoch Edwards.*) I should like to put a question with reference to timbering which I put to Mr. Delevingne, and to which he could not give an answer. He said he thought Mr. Atkinson might be able to answer it. Are the men at the Courrières mine who do this timbering, men who work by contract or by day wage?—I am afraid I am not able to answer that with certainty, but I have an impression that they work by tonnage. I have here some copies of instructions with regard to timbering which have been drawn up at particular collieries, supplementing the Special Rules, and I think it is something of that sort that ought to be more generally taken up. I will hand in a copy of the rules in force at two collieries.

(A.)

"SPECIAL INSTRUCTIONS *re* TIMBERING AND PACKING.

NOTE.—These instructions are issued with a view to reduce the liability to accidents from falls of roof and side, and must be strictly carried out. Any person who does not comply with them will be liable to prosecution under General Rule 36 of the Coal Mines Regulation Act, 1887.

1.—There must be *three rows* of props in the working faces not more than 4 *ft.* 6 *in.* apart each way (except in the Holly Lane Seam where they may be 5 *ft.* under good rock roof). As soon as possible after a web of coal is got out the back row of props shall be moved and re-set between the two front rows.

2.—Where the roof is tender or faulty, drift bars shall be set regularly.

3.—As soon as possible after a fall of coal is got off, the face side must be secured and stretchers from the head side timber must be set, and the face properly spragged as soon as the loose coal is moved away.

4.—Care must be taken that sprags are properly set and stamped into the floor.

5.—Sprags in the Ten Feet, Hard Mine and Cockshead seams must be set *not more than* 4 *ft.* 6 *in. apart*, and in the Holly Lane and Bowling Alley seams not more than 5 *ft.* 6 *in. apart*. Measurements to be taken *between* the timber.

6.—All persons timbering in roadways or removing loose roof dirt must set temporary timber so as to make the place safe for themselves whilst repairing it.

7.—No person shall leave timber, rails or other materials in the goaves or other unsafe place, or use rails, sleepers or other articles for any purpose other than that for which they are provided.

8.—PACKING. As soon as is practicable after the coal has been got out, packs must be built and properly completed at once. All packs must be so built as not to obstruct the ventilation of the coal face, *i.e.*, a road not less than 2 *ft. wide* shall be left between the pack and face, unless the manager or undermanager shall otherwise direct.

The packs shall be built as follows:—

Name of Seam.	Dip Packs not less than	Middle Packs not less than	Wastes not more than
Ten Feet	4 yards wide	3 yards wide	8 yards wide
Bowling Alley	4 „ „	3 „ „	10 „ „
Holly Lane	4 „ „	3 „ „	10 „ „
Hard Mine	4 „ „	3 „ „	8 „ „
Cockshead	4 „ „	3 „ „	11 „ „

Chocks shall be set, taken out, and re-set in the Wastes where it is considered necessary by the manager or undermanager."

(B.)

"SIX FEET COAL SEAM.

No. Stall.

NOTICE

TO STALLMEN OR CONTRACTORS.

All Timber to be set in Stalls as under, viz.:—

The distance for props to be apart on the face must not exceed 3 feet, and the distance from the face timber to back timber not to exceed 5 feet, and nearer if necessary. Each prop must have a suitable lid on it. The face timber to follow the Buttock close up.

Sprags not to exceed 5 feet apart, and when the holing is over 4 ft. 6 in., Undersprags to be set. "Cockers" in all cases to be put up where the coal is broken, and where the top of the coal is overhanging, or lying at an angle.

Stallmen or Contractors to see that the timber is set as above, and to see that the Workmen employed by them do not work in danger.

The Stallmen or Contractors to examine the way end, and all parts of the Stall, and if there is any danger the men must not be allowed to work.

No Stall to be worked unless there is a plentiful supply of timber.

The Chain and Bar must be used for drawing timber. Workmen found endangering their lives by neglecting to use the Chain and Bar, or by not setting timber to secure the roof and sides whilst drawing timber, will be sent out of the mine at once, and summoned before the Magistrates.

A "Tickler" or "Rammer" for drawing timber in dangerous places is provided in each pit, and can be had on application to the Competent Man.

The Competent Men must see that the timber is set

Digitized by Google

Mr. W. N. Atkinson.
14 Nov. 1906.

as above, and examine the coal, roof, gob road, and wastes of each Stall, and if they find any danger to stop the Stall, and report the same at once to the Under-Manager. The Under-Manager to go and examine the Stall, and if he finds it in a dangerous state for want of the timber being properly set, the Stall must be stopped until the danger is removed, and the Stallman to be fined not less than the sum of Two Shillings and Sixpence for each offence."

5857. (*Chairman.*) I see you say in your last Annual Report, "The only hopeful sign is that every now and then a colliery manager takes the subject in hand, and beyond merely specifying the maximum distance apart at which props are to be set, draws up a code of regulations respecting the support of the roof and sides which, if enforced in practice, will, no doubt, have a beneficial effect." I see that the regulations (A) which you have handed in provide: "(1) That there must be three rows of props in the working faces not more than 4 ft. 6 in. apart each way (except in the Holly Lane Seam, where they be 5 ft. under good rock roof). As soon as possible after a web of coal is got out the back row of props shall be moved and re-set between the two front rows. (2) Where the roof is tender or faulty, drift bars shall be set regularly." Then there is a rule with regard to sprags, providing that sprags shall be set not more than 4 ft. 6 in. apart, and so on. Rules of that kind, I suppose, are what you are alluding to?—Yes; I think that is the direction in which improvement should be effected.

5858. You do not see your way, I suppose, to suggest any system by which the men could be made acquainted with the dangers of not properly propping—or rather, I suppose, that by this time they would know the dangers of it—but made to know the best means of propping, or to be scientifically instructed in the matter?—No.

5859. (*Mr. F. L. Davis.*) Those rules you refer to are not Special Rules, I think. Are they not issued as extra rules or instructions by the owner?—They are issued as special instructions by the manager.

5860. (*Chairman.*) I see they are headed "Special Instructions *re* Timbering and Packing." You do not see your way to suggest any alteration in the method of imparting information to the miners as to the method of timbering?—No, I think there is plenty of information.

5861. What do you say about haulage accidents. I see in Staffordshire the death-rate for the last five years from haulage accidents was not as high as in the South Wales districts?—I thought the haulage accidents were far too numerous. Haulage accidents arise from a number of causes—small roads, irregular gradients, badly laid rails, weak or insecure couplings, non-provision or neglect in use of safety appliances such as stop-blocks and drags behind tubs or inclines, dangerous practices by drivers, such as walking between horse and tub, holding back tubs on gradients, or twining them at curves while in front of the tubs, and riding on chains, or, in South Wales, on the "guns."

5862. There are certain appliances, as I understand, which block wagons, so that if they run back a certain distance they become blocked and cannot go any further. How far would you suggest that those appliances should be compulsory?—Their use is made compulsory by the Special Rules. I think it is attention to a great number of details that is chiefly necessary for reducing the number of haulage accidents. Something might be done by requiring the roads to be of sufficient size.

5863. It has been suggested that it might be compulsory to have 2 ft. on one side, and always the same side of the trams, so that a man could get out of the way anywhere?—That, no doubt, would be a good thing if it was practicable.

5864. But probably in some mines it could not be done, and you think it would be impossible to widen the roads to the extent that would be required?—It would be very difficult in some mines. Another point is that dangerous practices are allowed.

5865. You think the men ought to be more strictly supervised with regard to riding on the "gun," and that sort of thing?—Yes; and walking between the horse and the tub, and holding tubs back in gradients.

5866-7. That is part of the general discipline of the mine, I suppose?—It is part of the general discipline of the mine.

5868. With regard to shaft accidents, do you know anything of the use of safety catches?—There are, I believe, some safety catches which act on wooden guides. I have seen them.

5869. Have you formed any opinion about them?—I do not think myself that they have arrived at such a state of perfection that it would be wise to make their use compulsory.

5870. Do you think that there ought to be any test of enginemen, with regard to their capability?—I do not see any objection to it, although at the same time I cannot say that I have seen any necessity for it.

5871. They are generally very careful men, I understand?—As a rule, they are very careful men. There is one point which I should like to refer to with reference to shaft accidents. It is becoming more and more general to send large numbers of men down at once in one cage, as many as 40, or possibly more men, in one cage. I think that in cases where so many men are wound at once some special precaution should be required.

5872. In the way of bars to the cages, or something of that sort?—No; more with reference to detaching hooks or some other means of preventing overwinding; that would be the chief object. With reference to that, the ordinary detaching hook only protects the ascending cage. There are other appliances which stop the engine in case of overwinding. It is a question to my mind whether it would not be advisable to make the use of such an apparatus compulsory where large numbers of men are wound in one cage.

5873. But why compulsory only when large numbers are wound in one cage? Surely if there are a dozen men in a cage it is extremely important that they should be as safe as 40 men?—No doubt it is important in any case, but there are two things that may be said about it; it is more important when there are a large number of men, and the difficulty of employing such an apparatus in the case of small collieries where they wind a few men at once is very much greater.

5874. With regard to special rules and, first, as to setting up special rules. The present system of establishing them is rather cumbrous and takes a long time. Would you suggest any alteration?—I think the present process is altogether obsolete.

5875. What is obsolete?—The system of establishment; it ought to be abolished. Special rules when once established for a district ought to come into force automatically.

5876. That is one point, but as regards the establishment of new rules, do you suggest any other means than the present means of arbitration, supposing there is any difference of opinion? For instance, it has been suggested that the provisions of the Factory Act as to making regulations for dangerous trades might be adapted to coal mines, and that the Secretary of State, after hearing what everybody has to say and holding an inquiry where necessary, might be empowered to set up special rules without going to arbitration. What do you think of that?—I have not had any experience of that system. I am not sure that it would be in the end better than the present one. It is most desirable, with reference to special rules, that there should be an agreement both on the part of the colliery owner and the miners.

5877. So that you do not think it would be desirable to make the Secretary of State paramount in the matter. You think there ought to be arbitration and that the Secretary of State, even if he is of a contrary opinion, should be bound by the arbitration?—I think there would be a greater risk of rules being made which would not be carried out under that system. At the same time there is no doubt that arbitration is a costly and cumbersome method; but I am not sure that in the end it is not as good as the system under the Factory Act.

5878. You have no strong opinion one way or the other as to whether the Secretary of State should be paramount or not; or whether it would be necessary to go to arbitration in cases of disagreement?—No; I think I may say I have no strong opinion. I have had no experience of the working of the other system.

Digitized by Google

5879. As regards the various codes of special rules, do you think that they might be simplified and consolidated in many cases?—They might be simplified by taking some things out of them, and putting them into the general rules; that would be one way of simplifying them. Then where there are different codes in the same district they might very well be consolidated and made into one. There are four principal codes in my late district. I see no practical difficulty about consolidating them.

5880. Are those four codes very different in substance?—Three of them are very similar.

5881. And the fourth is rather different?—The fourth is rather different.

5882. But still you see no objection to consolidating all four sets?—No.

5883. And you think it might be done with advantage?—I think so.

5884. I gather that you are of opinion that there are a large number of special rules which might very well be incorporated in an Act of Parliament and made general rules?—A considerable number.

5885. As regards Section 45 of the Mines Regulation Act, which provides that a formal investigation into an accident may be ordered by the Secretary of State, supposing there is a difference of opinion among persons who are interested as to whether the first inquiry at the inquest brought out the causes of the accident, and whether it was satisfactory or not. It has been suggested that in that case there might be some means of over-ruling the Secretary of State if he did not desire that such a second investigation should take place, and that there should be something in the nature of an appeal from his decision, say, to a judge of the High Court or to some sort of tribunal?—I see no necessity for such appeal.

5886. You think it is quite sufficient that the Secretary of State should have it in his own power as to whether he would order a second inquiry or not. Have you known any instances in which the men have desired a second inquiry, and in which it has not been held?—I think I have heard of such cases, but I have had no personal experience with reference to them.

5887. Then I may take it that your experience is that the investigation at the coroner's inquest is generally sufficient, and that all material facts are brought out. Is that so?—Yes, I think so, in nearly all cases.

5888. In cases where you did not think the material facts had been brought out, have you ever suggested a further inquiry?—No; I have never had reason to do so. In all cases that I have had personally to do with I was satisfied that all the facts were brought out.

5889-91. With regard to rescue work and the use of breathing apparatus, is there anything that you wish to say?—I think it is desirable that rescue stations should be established in the mining districts.

5892. And that there should be ambulances, I suppose?—Well, ambulance is a matter more especially for the individual collieries.

5893. You mean that there should be a station for rescue work which would serve a whole district?—Yes.

5894. And that each individual colliery should supply its own ambulances?—Yes, as they do at present.

5895-8. Do you think it ought to be compulsory that owners of mines in a district should have at least one rescue station. Is that your suggestion?—Yes.

5899. With regard to ambulances, would you have it made compulsory that the owner of every mine should have, say, one ambulance appliance for so many men who are working, or anything of that sort?—Ambulance appliances are already required by the Act. There is room perhaps for improvement in this direction.

5900. General Rule 34 provides "Where persons are employed underground, ambulances or stretchers with splints and bandages shall be kept at the mine ready for immediate use in case of accident." Do you think that there is a reasonably sufficient supply of ambulances or stretchers, and splints, bandages, and so on, now kept at the mines?—In many cases it would be a great advantage if there were better means of conveying injured men from the mine to their homes or to the hospital.

5901. Then you are not satisfied that sufficient ambulances are provided?—No, I think there is room for improvement. A proper carriage should be available in case men have to be taken any distance.

5902. Would you say, for instance, that there ought to be a proper carriage ambulance—say one ambulance for so many men employed underground? Do you think that some rule of that kind should be established?—I should say that if there was one for a large colliery it would be sufficient.

5903. What would you do in the case of a small colliery?—There might be combination where possible.

5904. But surely a colliery might be so large that you would want more than one ambulance?—Yes; in the case of a serious accident it might require more than one ambulance, but I think it would be satisfactory if there was one proper carriage available at each colliery.

5905. And you think that ought to be made compulsory upon the owners?—I think it is only reasonable that it should be.

5906-7. Have you anything to say with regard to breathing apparatus? Have you come across them or had any experience of them?—I have seen them used; I have had one on myself on one occasion.

5908. We may take it you are not an expert in those matters?—I am not.

5909. Do you know anything about the miners' disease, ankylostomiasis?—Only by reading.

5910. You have had no case or no suspicion of any case?—No suspicion of any case.

5911. Have you in South Wales sanitary conveniences which the miners make use of?—I do not think anything has been done in South Wales with regard to ankylostomiasis. Something has been done in Staffordshire, and something has been done in some of the other districts, but so far as I have heard, in South Wales nothing has been done.

5912. What do you mean by "something being done"?—That conveniences have been provided to some extent.

5913. But are there no conveniences in South Wales? I thought there were?—Not that I have heard of or been able to hear of by inquiring.

5914. Do you think there ought to be conveniences established in South Wales?—Yes.

5915. I suppose that is one of the matters you will look into?—Yes, I think it would be.

5916. With regard to the examination system, are you satisfied with its working in your district? I understand there are eleven Boards of Examination in the United Kingdom?—The Mining Board in the Stafford district works satisfactorily, I think.

5917. You have not much experience of the South Wales Mining Board, as you have only just gone there, I understand?—I do not know anything of the South Wales Board. There is one Board there for the two districts.

5918. Do you agree with the present system, or do you think there might be reasonably one examination for all the districts?—I think there should be greater uniformity with regard to the examinations.

5919. Do you think there should be absolute uniformity—one set of examinations or one set of papers sent down to all the districts?—One set of papers sent to the districts, I should say.

5920. One set of papers all round?—Yes, with a local *viva voce* examination.

5921. That is to say, that a man would first of all have to bring a certificate showing that he had passed the written examination, and then he would be further subjected in any district in which he might seek for employment to a *viva voce* examination in that district before he could work in any particular district? Is that your suggestion?—Something of that sort.

5922. Several Mine Inspectors have given evidence, and I understand that what the majority of them desire is that there should be a central examination, and that in that central examination it should be necessary to pass in every subject?—Yes.

5923. At present I believe in some of the districts it is not necessary to pass in every subject so long as

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 1906.

you get a certain total number of marks, that is enough?—I do not think that is right.

5924. You think there should be a central examination, and that the candidate should pass in every subject in that central examination, or at all events, in all the more important heads upon which he is examined?—Yes.

5925. For instance, it should be compulsory that the candidate should know something about fiery mines?—With regard to fiery mines, that is another question.

5926. You mean whether there should be a separate certificate for fiery mines?—I do not see any necessity for it.

5927. So that every candidate, whether he went to a fiery mine district or not, should be obliged, in your opinion, to qualify in a knowledge of fiery mines?—He should pass the same examination as the rest.

5928. And you suggest, as I understand others have suggested before you, that a man should first of all be obliged to pass the written examination, and that then if he went, for instance, to work in South Wales, he should then be subjected to further *viva voce* examination?—No, I mean that he should take the *viva voce* examination in the district in which he was examined.

5929. You mean the district which he was then seeking to qualify for? If a man in South Wales was to sit for an examination in South Wales and passed the written examination, would you say that that would be sufficient? Ought he not to pass some sort of *viva voce* examination also?—He ought to pass an examination, and that examination ought to qualify him to act as a manager in any district.

5930. Without any further qualification at all? So that if he went from South Wales to Durham, for instance, where I understand the mines are very different, he would produce his South Wales certificate, and that would be sufficient without any *viva voce* examination?—I do not see any necessity for any alteration in that respect.

5931. (*Mr. Wm. Abraham.*) May I put it in this way? Would you allow a manager having a certificate of the Bristol Board, say, to become a manager in South Wales?—Yes—or of any other Board.

5932. Are you aware of the vast difference existing between the two examinations?—No, I am not aware of the difference.

5933. In your opinion the examination everywhere should be such that if a man passes it would enable that man to go to any district?—I think so.

5934. Then in your opinion where there is a difference of standard in the Boards examining those men that ought to be annihilated?—That ought to be done away with; the standard ought to be the same all through the country.

5935. (*Chairman.*) I understood you to say previously that you thought that if a man wanted to work in any particular district, after having passed his general examination he should be subjected to a *viva voce* examination in that district; but I understand now that that is not your opinion. You do not want to supplement it in any way?—No, it is one examination; it is part of the same examination.

5936. You mean that the *viva voce* examination should be part of the same examination; the paper examination should be the same in every case, that is to say, that it should be on the same papers, although there might be different examiners—the same papers should be sent down to all the districts, and then after that the examiners should make any further *viva voce* examination that they desired, so that in point of fact the examination would not be absolutely the same in every district, because the *viva voce* examination would be different?—Yes.

5937. And the marking of the papers, I suppose, may be different also?—The object is to secure as great uniformity as possible, both in the qualifications and in the examinations.

5938. (*Mr. Cunynghame.*) Then I suppose a well-conducted local examination would give the local examiners power perhaps to put right a man who had not been so clever in expressing himself in the written examination, but who was a thoroughly good practical man?—It is rather difficult to say how far a discretion of that sort should be allowed.

5939. You do it by the system of marks. You would not allow them simply to pass a man, but if he did exceedingly well in a local examination, that might to a certain extent count, might it not?—I think it would be a difficult matter.

(*Chairman.*) You would add the marks together for the *viva voce* examination and for the written examination.

5940. (*Mr. Cunynghame.*) I wish to know what you think about some such system as that?—I think it would be rather difficult to carry out.

5941. I understand you to think that it would be a dangerous thing to carry too far?—If a man did not pass on his written examination.

5942. You would not allow too much local power?—It should be very guarded.

5943. I understand that that is done to some extent; some of the candidates are rather poor at expressing themselves, although they may be clever men, and they may fail a little in the writing part, but then they answer questions, and answer them very well indeed?—Yes, that may be so.

5944-5. With regard to certificates for metalliferous mines, have you any knowledge of metalliferous mines?—I have not had much experience in metalliferous mines recently, but I do not see any reason why certificated managers should not be required for them.

5946. Probably if that was so, and if a certificate for metalliferous mines was required, there would have to be several classes of examinations, because I suppose metalliferous mines are very different?—It would be quite a separate certificate from that under the Coal Mines Act. But I do not see why the same certificate should not do for all metalliferous mines.

5947. With regard to the practical experience of candidates who sit for these examinations, do you think that they might be allowed to qualify themselves in foreign mines or colonial mines?—Yes, I think that might be allowed, provided the examiners were satisfied that the experience was really obtained and was comparative with experience which might be obtained in this country.

5948. With regard to the working plans of mines in your district, it has been brought to our notice that there have been accidents by reason of floodings owing to plans not being accurate—at any rate as regards old plans. What do you say as to the present plans? Do you think they are more accurate now than they used to be?—In some cases they are, but I think there is room for considerable improvement in reference to mining plans.

5949. What would you suggest?—The most practical thing that suggests itself to me is to require that the surveyors should be competent men.

5950. That a plan should always be certified by somebody who had passed some examination as surveyor, or some sort of examination that would give him a status?—That is what I would suggest.

5951. In your underground work in the mines I suppose if you had any reason to doubt the accuracy of a plan you might yourself verify it to some extent?—Yes, it could be done, I think. It has been done, I believe.

5952. It has been done occasionally, and that would be part of a mine inspector's duty, if he had any misgivings as to a plan?—He would have to take special steps with reference to it.

5953. He would be justified, and you think, in fact, he ought to take those special steps if he had any reason to doubt the accuracy of the plan, or if persons in whom he had confidence suggested that there was anything wrong with the plan?—Yes, if it was a case of serious inaccuracy.

5954-7. It has been suggested that when a mine has not been worked for a twelvemonth it should be treated as abandoned, and that the owner should be bound to produce a plan of the mine to the Home Office in the same way that he has to produce a plan of an abandoned mine, and that it should be considered proof of abandonment if the mine has been stopped for a year?—Yes. I think that would make the obtaining of plans of abandoned mines easier and more certain. The question is whether power ought not to be given to the Secretary of State to require the plans to be sent in at any time; because, after all, they are

Digitized by Google

only copies of the plans, and they are protected for ten years against anyone except the Secretary of State seeing the plans.

5958. At all events, after the expiration of twelve months you would make it compulsory that a plan of the mine as it was at the end of the period for which it was worked should be produced?—Yes.

5959. With regard to under-sea workings, do you know anything about them?—I have had no recent experience with under-sea workings, and I never had very much. In Cumberland there were under-sea workings. I have been in those pits, and I had some in Durham; but in Durham there was great depth.

5960. You had no difficulty there?—No; no question of safety ever arose.

5961. (*Mr. Cunynghame.*) You have carefully considered the suggestions made in the report on your visit to Westphalia with regard to watering, and the feasibility of carrying them out?—Yes.

5962. The cost, apparently, would not be very large. According to this report, during the first year it comes to 1.15d., and altogether it works out apparently at about 1½d. per ton?—Something like that, I believe.

5963. As against that 1½d. there would seem to be considerable advantages in cooling down the air. I suppose you are of opinion that it is really dust rather than gas that we have to be careful about in the future. Dust is more threatening and alarming than gas?—I have no doubt about it.

5964. I suppose you would say (I think it follows, from your observations in the Courrières Report) that it is really almost inconceivable that a mine worked by a large number of men could get dangerously full of gas from one part to the other without its being found out?—If they are working with naked lights.

5965. Or if they are working even with lamps, it would be very difficult to imagine a mine getting full of gas to an explosive extent from one end to the other sufficient to cause a great explosion, without people perceiving it?—It would be in the case of a mine having different extensive districts.

5966. So that when you hear of a big explosion taking place in a mine like Courrières, the probability is enormously greater that it is dust than that it is anything else?—Yes.

5967. This watering, probably, with some alterations in the regulations as to the use of explosives, you would consider to be the best thing we could do—under the present circumstances, at all events—to make things as safe as they can be made in regard to big explosions?—Yes; I think so.

5968. You have spoken also in this Report of the advantages of a bath-room for miners. I am told that in some places the men prefer very much to bathe at home, so as not to be—in this climate, at all events (I do not know whether it is different in Germany)—so likely to catch cold in going home. Is there anything in that point? I have asked frequently why men do not seem to like to bathe in some places (in most cases there are no objections), and I am told that the men prefer bathing at home. Have you any knowledge as to that?—No; I cannot say that I have heard it. I think it is quite possible that the men might prefer to bathe at home. There is no means of judging what they would do in this country.

5969. Because they have never had a chance of having something of this kind, you mean?—Because they have never had a chance of using a bath at the mine.

5970. (*Sir Lindsay Wood.*) I think you said that you considered it was advisable that the assistant-inspector should undergo a more scientific examination than he does at present?—Yes; I think so.

5971. I suppose that is with a view of assistant-inspectors becoming chief inspectors hereafter?—Yes.

5972. I suppose they have not very much time, after they are appointed inspectors, for studying scientific questions?—There is no doubt they may continue to study scientific questions; but if they have not made a start when they are appointed, it is not very likely that they will ever do so.

5973. Because they have not got the ground work?—If they have not got the groundwork when they are appointed, they will not start.

5974. You look upon that as important?—I think that is a most desirable thing. I think the best class of young men should be appointed that can be got.

5975. With reference to inspection by the workmen, you said it was seldom resorted to. There are two sorts of inspections, I take it—one a periodical inspection, and the other an inspection after accidents?—Yes. I think that is only carried out in Durham and Northumberland, so far as I know.

5976. Even after accidents?—Yes.

5977. It is very general in Durham after accidents?—It is almost universal, I think, or used to be.

5978. But the inspection once a month is not so general?—No; not in Durham, and in many districts there is practically no such inspection at all.

5979. Do you not think that if the men had to inspect the mines once a month in a large colliery it would take a very large number of men and a very long period of time?—Yes; no doubt. I have heard of their spending two and three weeks in examining one colliery.

5980. But if it was general that there was an inspection by the men once in three months, do you think the inconvenience, the cost, and the trouble they were put to would be sufficient to justify it?—Well, that is what the present Rule allows. I understand your question to be whether the examination every month is worth the cost?

5981. Yes?—I think I should leave that to the discretion of the men.

5982. But I understood it was the idea that it should be made practically compulsory that the men should examine the mine once a month?—I would not make it compulsory.

5983. You are of opinion that it would not be necessary to make it in large mines once a month—or, rather, once in three months, I should say?—The present Rule allows it once a month.

5984. But they do not carry it out?—I suppose not. If it takes them a fortnight or three weeks to examine one colliery, it is not likely that they would be doing it every month.

5985. With regard to the question of fines or prosecutions, have you ever found, or do you often find, that the fines are not sufficiently adequate for the offence?—No. So far as I have observed, the fines seem to have been proportioned to the offence—that is to say, the bigger fines for the more serious matters.

5986. In the case of serious offences being committed, the owners generally prosecute?—Not altogether so much as they should, I think. I think they sometimes impose a fine where it would be better if they had prosecuted.

5987. You think prosecutions would be better than fines in many cases in which they are not at present adopted?—I think so.

5988. I did not quite understand your point upon the charter-master system. You said that the man who made the examination under General Rule 4 should not be a man who was employed by the charter-master?—Yes.

5989. Who would be in a position to examine the mine? I suppose all the men in such a mine are employed by the charter-master?—That is so in some cases; but in other cases there would be the manager. Of course, the manager could not be in the employment of the contractor. In some cases there may be an overman over the charter-master who is not in the employment of the contractor. But, in any case, I say the person appointed to examine the mine should not be in the employment of the contractor, for the same reason that the Act prohibits a contractor occupying that position.

5990. That would rather point to doing away with the charter-master system altogether?—I think it would be a good thing if it was done away with. But it is hardly a thing you could abolish by Act of Parliament, I think.

5991. With regard to the question of dust, do you think the experiments which have been made are sufficient to prove why dust explodes—or, rather, what proportion of air is necessary with dust or with gas and dust to cause an explosion?—No; I do not think the experiments made prove anything more than that dust will carry on an explosion.

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 1906.

5992. There seems to be no doubt that the explosions are prolonged and intensified by dust?—And also initiated by dust. In my view the experiments which have been made prove that an explosion may be initiated and carried on by coal-dust alone. But beyond that they prove very little or nothing.

5993. But does it, or does it not, require a certain proportion of fresh air to do that?—Necessarily there is air.

5994. That proportion has not yet been well defined?—No, I do not think so.

5995. Is it not the fact that nearly all these explosions which have been attributed to almost pure coal-dust have taken place in the main airways?—The great majority of them.

5996. Where there is a large quantity of air?—Where the air is travelling at a certain velocity. That is easily explained by the fact that those are the roads where the dust is.

5997. Have you ever found dust explode in the face?—Yes, sometimes.

5998. Without gas?—It is very difficult to say absolutely without gas, because at the face of any mine it is possible that there may have been gas.

5999. Does it require a large amount of flame of some sort to set fire to the dust? A candle-flame would not set fire to the dust?—No, I do not think it would; it requires a large flame, I should say.

6000. An explosion of some gas would do it?—Yes; and under exceptional circumstances it might be initiated by a large lamp-flame, such as a torch lamp.

6001. Yes, but that would be a flame of some size?—It has been done on the surface in that way, at any rate. But in mining I think the only dangers that need be looked at in this connection are explosions of gas and explosives.

6002. An explosion of gas either by the creation of fire by an explosive or by some other means?—Just so.

6003. Where blasting is not adopted it would not be so essential to have the roads watered?—I think it would be essential for all that, because there is still the danger of gas explosion. Of course, where you have blasting you have two risks—blasting and gas; where you have no blasting there is only the one risk of gas, but still that is a serious risk.

6004. Of course, I meant where you had safety-lamps entirely in use, and not where you had naked lights?—Explosions have occurred in pits where there was no blasting and where there were safety-lamps.

6005. Has it been discovered how the fire came?—A damaged lamp might cause it.

6006. There must have been gas; it would not be merely a case of dust?—No; the explosion must have been started by gas.

6007. With regard to watering zones, how would you carry out that system in a large colliery?—By means of pipes and hose.

6008. But I mean, where would you put the zones? Would you have zones of 50 yards or 100 yards?—At the junctions of haulage roads we suggest in the German Report.

6009. That is to say, the branch ends, where they branch off?—The branch ends.

6010. At each place?—Yes, and at the far end of the haulage roads.

6011. Not in the face?—Not at the face. At the end of the main haulage.

6012. You mean at the flats where the tubs are collected?—Yes.

6013. There are some mines in which it would be almost impossible to do that from the nature of the strata?—It would be difficult, and it might be costly to do it, but not impossible, I think.

6014. Not dangerous?—No; I do not see any danger about it. They water in South Wales, in some mines with very bad roofs. Of course, it would be more difficult in some cases, and it might be practically impossible in some exceptional cases.

6015. I see in your report you refer to those?—They did not seem to have found much difficulty in Germany.

6016. But it has not always been successful?—Do you mean in Germany?

6017. Yes; I thought they had had some gas explosions in Germany?—I do not think they have had any big explosion in any pit where they have watered. Before they watered they had some very large explosions.

6018. Then your idea is that there should be a system of water-pipes through all the main ways. I do not quite know whether you mean to suggest that it should be through the returns as well?—The returns are not included in the proposals made in the report as to the Westphalian visit.

6019. But the main airways; I did not know whether that referred to the returns as well as to the others?—No, I think it is the haulage roads, intakes, and travelling roads.

6020. Why not the returns?—If the returns are dusty it would be certainly an advantage to water them.

6021. But if the main roads are dusty surely the returns also should be watered?—No; it is found in practice that the returns are very often free from coal-dust. In nearly all the large Durham collieries there is no explosive dust in the returns.

6022. But there is a good deal more dust in the returns than in the main roads?—I do not agree with that; there is not more dust, and it is not coal-dust either.

6023. But has not it been proved that coal-dust is not the most explosive dust?—I do not think so.

6024. I think the experiments which were made by the Institution of Mining Engineers rather went to prove that?—Not that I am aware of. What dust do you say was shown to be more explosive than coal-dust?

6025. The dust worked up on the main roads by the horses' feet?—I do not think there was anything of the sort proved—not that I have heard of, at any rate.

6026. Is the dust on the main roads chiefly coal-dust?—On the haulage roads, yes—and the most dangerous sort of dust—dust blown off the tubs.

6027. That must be in very dusty mines?—There are haulage roads, or there used to be haulage roads, in Durham with far more dust on the upper surface than you would find soot in any chimney.

6028. I do not know quite what you mean?—Dust half an inch thick on the bars and props and on the sides.

6029. But that is not coal-dust?—Yes.

6030. Not entirely coal-dust?—Almost entirely coal-dust—blown off the tubs.

6031. I think you would find that a great deal of that was clay-dust?—There is no source from which clay-dust can come on those roads. The haulage is by ropes.

6032. But still it works up. I think I can bring you some which is not of that colour, whatever it is. But, at all events your suggestion here is that there should be water-pipes laid through all the roads right up to the face?—The haulage roads.

6033. That would be, in large collieries, a very considerable item?—It would be many miles of pipes.

6034. I notice in the German report that in one colliery it costs about 1½d. a ton, and in another only a decimal of a penny. Can you tell me what the reason of that was. Was it on account of the roads being shorter?—On account of there being less watering required, I should imagine.

6035. One was 0.86d. and another 0.78d.?—Yes; they vary considerably, but we did not go into the details as to the exact reasons.

6036. This would not include anything for dealing with the waste due to watering?—No, I imagine not.

6037. That would be the heavy cost?—If it was necessary.

6038. But it would be essential. The mere act of watering, unless you had a very exceptional floor,

Digitized by Google

would make the floor such that it would require an enormous amount of money to keep it level?—They did not give us information to that effect.

6039. That is my experience?—There were difficult places, but, as a rule, after the water had been applied for some time there was no extra cost for maintaining.

6040. I know of some cases where there would be as much as 10 or 11 feet of floor to take up?—There are cases where it would be very serious, no doubt.

6041. And the only danger where there is no blasting and where safety-lamps are used, would be in the case of having a bad lamp?—Yes. There are other possible means of ignition of gas.

6042. What are they?—They are using electric lighters now for relighting lamps; they give sparks.

6043. Are those not kept on the surface?—Lamps are sometimes relighted underground.

6044. (*Mr. Smillie.*) And there are, I suppose, electric coal-cutting machines and electric pumps?—Yes, that is another source of possible ignition of gas.

6045-6. (*Sir Lindsay Wood.*) But is electrical machinery used where gas exists, or is supposed to exist?—There have been several explosions of gas caused by explosions of gas caused by electric machines.

6047. (*Mr. F. L. Davis.*) At the face, with coal-cutting machines?—Some at the face, with coal-cutting machines.

6048. (*Mr. Wm. Abraham.*) What were the others?—Pumps.

6049. (*Sir Lindsay Wood.*) You said that with regard to the lamps you thought that it would be advisable that there should be a test of the type of lamps?—I think that would be a good thing.

6050. Would it not be well that that should be carried out by some central authority, say the Home Office or the Government, rather than by the trade generally?—I have no very strong opinion as to it.

6051. I mean it would give it more authority, at any rate?—Yes.

6052. With reference to the question of plans, I think you said that you thought a copy of the plan should be sent to the Home Office if a mine was stopped for twelve months. Would the Home Office have power to use that plan in any way?—If required for the purposes of safety at an adjoining mine, for instance: then I think it ought to be available for use.

6053. What I was rather referring to was the case of a seam being stopped for twelve months, and still held by the lessees under lease; would it be right, in your opinion, that the plans should be open to the adjoining colliery?—No.

6054. Would that not be the case if it was deposited at the Home Office?—It might be the case if a question of safety arose.

6055. If a question of safety arose they could see the plan there and then?—Just so.

6056. (*Mr. Wm. Abraham.*) But if another mine were opened how would they know to what distance they could work?

6056*. (*Sir Lindsay Wood.*) They would have to keep within the area leased to them?—I was referring rather to the abandonment of a colliery than the abandonment of a seam.

6057. But if a particular seam of a colliery stopped for twelve months you would not consider that a plan should be sent in?—No, I would not consider that necessary.

6058. I thought you did not quite understand the drift of the question?—No, it was the whole colliery that I was referring to.

6059. A case in which the whole colliery was really abandoned and given up?—Yes, ceased working.

6060. I do not mean only that it ceased working, but that the lease was given up?—That is where the difficulty comes in sometimes; we do not know what the relations are as to the leases.

6061. You are bound to give up a plan directly the colliery is abandoned?—But then they may say, "It is not abandoned; we intend to reopen it."

6062. But then you have a right to go and see the plans at the mine?—The plans may not be at the mine.

6063. (*Mr. Ratcliffe Ellis.*) But then the Act of Parliament says they ought to be, does it not?—The mine is not a mine, as far as being a working mine is concerned.

6064. But Section 34, with reference to the plans, provides that a plan shall be kept at the mine, and that it is to be open for inspection. If it was not kept at the mine there would be a violation of that section?—Yes.

6065. (*Sir Lindsay Wood.*) I understood the plans were either accessible to the inspector or accessible to the Home Office. The mines are either abandoned or not abandoned, and if they are abandoned the plans are at the Home Office, and if they are not abandoned they are accessible at the mine. It is Section 34: "The owner, agent, or manager of any mine shall keep in the office at the mine an accurate plan of the workings up to a date not more than three months previously"?—But does not that refer to a working mine?

6066. (*Mr. Ratcliffe Ellis.*) It would seem that under that section you are entitled to see the plan at the mine?—There may be no office; the office may be pulled down.

6067. Then it looks as if there would be a violation of that section in that case. It is strong evidence then that it is an abandoned mine, and if that clause is not carried out it looks very much as if it would be an abandoned mine?—The difficulty is to say when a mine is abandoned.

6068. (*Mr. Wm. Abraham.*) The difficulty is to get it admitted, I suppose?—Yes.

6069. (*Mr. Enoch Edwards.*) I understood you to say in answer to his Lordship that you thought more inspectors were desirable?—I think I said that in order to maintain a certain standard of inspection more inspectors were required in some districts.

6070. I understood you to say that some of the districts were very large?—Yes, I thought the most efficient way of dealing with the matter would be to make smaller districts.

6071. You suggested the desirability of increasing the qualifications of assistant inspectors, especially in the direction of scientific knowledge?—Yes, that the qualification for the new appointments should be higher than they have been.

6072. I gather that what you thought hindered this now was the fact that promotion was very slow?—I think that has an effect.

6073. So that if you divide these large districts you will get promotions quicker?—Yes.

6074. You were asked your opinion on the inspection by the workmen?—Yes.

6075. You were asked what reasons were given in Staffordshire for inspection not being done by the workmen?—Yes.

6076. I gather in seeking for that information you asked the colliery managers only?—No, I think I have asked miners' agents as well.

6077. I want to put this to you, because I should like it to be on record somewhere; you said that in Durham and Northumberland they carried this inspection out more consistently and regularly?—When I was there.

6078. You gave as a reason that you thought in the early days when the Act was adopted that they were much stronger organised there, and they commenced with it and continued?—I think that may be the reason

6079. It would not be within your knowledge that throughout Staffordshire they did it largely in the early days of the Act?—No, I was not aware of that.

6080. You know the character of the collieries?—Yes.

6081. They had a system of inspection in nearly all those gassy collieries?—Not in my time I think.

6082. I want to suggest to you that one of the main reasons there was because workmen who had inspected and reported were interfered with by the management?—That is not within my knowledge.

6083. In answer to his Lordship on the question of fines you said that you did not think fines were suffi-

Digitized by Google

Mr. W. N. Atkinson.
14 Nov. 1906.

cient in serious cases. Do you mean by that, fines imposed in the colliery office?—Yes, they should not be dealt with by fines.

6084. You do not agree with the method of fining men in the colliery office for a breach of the rules?—The difficulty with me is what is to be done in the absence of fining for minor offences.

6085. I know it is suggested that it takes the officials there from their work to go before the court?—Yes.

6086. Is it not likely that they would go less before the court if they abolished local fines?—No, I think they would have to go more.

6087. Do you not think that if it were made known to the men that for breaches of rules they would have to go before a magistrate the number of occasions on which they would have to go to court would lessen?—No, I do not think it would.

6088. You do not think fining is a deterrent?—Because they fine much oftener than they go to court as a general rule.

6089. Do you think fining in Court would be a deterrent?—It is, no doubt.

6090. I am suggesting to you that if it was known that the men would be taken before the Court instead of being fined at the colliery office, that would lessen the number of cases they would have?—It might lessen the total number of cases dealt with, but it would not lessen the total number of offences that ought to be taken before the Court—at least, I do not think so.

6091. In your experience in the northern end of the county is there much fining done in the colliery office?—North Staffordshire.

6092. Yes?—I should say a moderate amount. I do not know that it is excessive there or very much less than in other parts.

6093. Would it be within your knowledge that collieries there have a higher discipline, and that there is no fining in the colliery office?—I believe there are cases where they have ceased fining; one, at any rate, I have in my mind.

6094. And the discipline in the pit is maintained?—So far as I know, yes, but how long they have ceased fining I am not quite clear about.

6095. You would not measure the discipline of the pit by the number of fines imposed?—No.

6096. In your reference to the butties or contractors, do I understand you that it does not exist in Staffordshire at all except in the southern end of the county?—Not what I call the butty system—that is, where the charter-master has the whole pit.

6097. Is it not correct that they work by butties in some northern pit—ironstone pits?—It is possible there are one or two.

6098. Generally they have abolished it?—Yes.

6099. Twenty years ago it was all butty system practically?—Yes.

6100. In these cases the custom in the northern part of Staffordshire was—I do not know whether it is in the south—that many of the butties paid for the timber?—They do so in the south now.

6101. Do you think that is a healthy state of things?—No; I think it is a very bad state of things.

6102. We are dealing not so much with the economic question as with the question of safety?—Yes.

6103. The contractors step into the place of the proprietor. That is the old butty system. They buy this timber. Have you had complaints from the men of proper and suitable timber not being supplied to them by these butties?—No; I cannot recall any particular case of complaint.

6104. In a number of accidents you have had there and inquiries which you have attended have no cases arisen where it has been due to neglect to timber?—Neglect to put timber in. There may have been a few cases where there was some question about the supply of timber, but I do not think that has been very marked. I have had occasion to complain myself at pits that the supply of timber was not as good as it ought to have been.

6105. Our information is that timber is not supplied to the men as is required by the law in sufficient quantities to keep their places safe?—Well, then they are not so open-spoken at inquests in the case of contractors' pits as they are at others.

6106. I am afraid men are not. There is a considerable danger at the back of it?—In the pit they do not speak freely.

6107-8. A question was put to you as to the powers of inspectors. Do you think that the inspector now, under the present law, has the power necessary to enforce discipline?—I think the Act confers the necessary power.

6109. We have had occasion to put to one or two of the inspectors questions on the practice of using naked lights in collieries where gas has been found. For instance, in the case quoted here this morning, "The fireman reported small gas." Do you think lamps should be enforced in mines where a fireman finds on his round in the pit gas in small quantities, not once or twice, but often?—Yes. The inspector has not power in such cases to enforce the use of lamps.

6110. That is the point I want to ask you about?—What I meant by saying I thought the inspector had the necessary power was to enforce the rules that are laid down by the Act and the Special Rules.

6111. The same Act makes provision for Government inspectors, such as yourself?—Yes.

6112. When you or your assistants, in making your rounds of a colliery, discover that it is a mine which yields gas, and gas is found, do not you think lamps should be put in?—In many cases I think so.

6113. Lamps should be put in?—Yes, but there is not power to go beyond the requirements of the General Rule.

6114. Many of the questions put this morning have been questions rather of negligence of the workmen to obey orders—to carry out instructions. I want to get back to this other point, because this is not a question of default on the part of workmen. If gas is found in the ordinary working of a colliery, not once or twice, but often, that is a case where you think lamps should be put in?—Yes.

6115. And the inspector has not power to enforce it?—In the case of many findings, I think he would have the power. General Rule 8 is vague, but still, it must mean something. If gas was frequently found, it ought to be held, I think, that it was likely that there would be an accumulation. The rule is based on the likelihood of the presence of gas. If it was found often, then I should say there was power to enforce the use of lamps.

6116-21. Without reference to arbitration?—By prosecution.

6122. Have you had any such prosecutions?—No, I do not recall at the moment any prosecution under that head. I do not think I have had one myself. I do not remember a case where it would have applied—that is, I do not remember a case where gas was frequently found where lamps were not put in.

6123. You are speaking now within your experience?—Within my own personal experience.

6124. We were rather dealing with cases of which you say you have not had experience, where gas was found, and men were burned, their hair and whiskers singed, and there were warnings by the inspectors, no lamps put in, and then you get an explosion. I suggest that lamps ought to be put in there?—I should say so.

6125. You have not at present power, except by arbitration?

(*Mr. Ratcliffe Ellis.*) He can prosecute the owner.

(*Witness.*) The power under the 8th General Rule. It depends on the probability of a quantity of gas being found.

(*Mr. Enoch Edwards.*) May we take it inspectors have not used all the power that they have?

(*Mr. Ratcliffe Ellis.*) Under Rule 8 it is clear they can prosecute the owner if there is a breach of the rule, just as for a breach of any other rule.

(*Witness.*) You want the evidence that the rule has been broken—that is, there must be a likelihood of a quantity of gas. If gas was frequently found, I should say the natural inference was that there was a likelihood.

6126. (*Mr. Enoch Edwards.*) I understood you to say that you had known more than one explosion by the same type of lamp?—I do not know that I specified any type of lamp.

Digitized by Google

6127. More than one explosion by the same type of lamp—that is in answer to a question put by his Lordship?—Yes, I think that is correct, too. That is a single gauze lamp.

6128. With that knowledge ought you not as an inspector to interfere to prevent it being used?—I do not think that follows. All the explosions by lamps I have had personal experience of, except possibly one or two, were cases of damaged lamps—generally broken glasses. I have read and heard of other cases where the explosion was attributed to a lamp which was not damaged.

6129. Of course, in your previous answer the question of the broken glass did not hardly arise. It was the question of the type of lamp?—I think I spoke of damaged or defective lamps.

6130. At any rate, that is what you mean?—Yes.

6131. It would be the same type of lamp, but it was damaged?—It might be the same type or it might not. If a lamp is damaged the type is of no importance.

6132. A question was put to you about timbering Rules. I know this is a matter to which you have given great attention?—Yes.

6133. You put in a copy of instructions in force in two collieries in Staffordshire. They have carried out your view of systematic timbering?—Yes, to a large extent.

6134. You have had no difficulty there in enforcing the rules either with the workmen or with the employers?—No special difficulty.

6135. What percentage of accidents have happened at these particular collieries since that date through falls of roof?—That I could not answer. The time and the number are too small to draw any conclusion.

6136. They are big representative collieries?—Yes, but not big enough to draw any strong conclusion from, at any rate.

6137. Is it possible in view of the varying gradients in the north end of Staffordshire to adopt one rule as to timbering and sprags?—I should say not; not to do it efficiently.

6138. The natural strata of the place rather preclude it?—The regulations should vary with the conditions.

6139. It would be impossible to get one uniform set of rules?—They would not be so efficient as different rules for different circumstances.

6140. There was a question which his Lordship put to Mr. Atkinson which hardly comes within the inquiry, but I should like to put it, because I have been asked in many quarters about it. It is with reference to General Rule 17 and the treatment of horses.

(*Mr. Ratcliffe Ellis.*) "Every travelling road on which a horse or other draught animal is used underground shall be of sufficient dimensions to allow the horse or other animal to pass without rubbing against the roof or timbering."

6141. (*Mr. Enoch Edwards.*) You have had some years of experience. Do you think the roadways in our mines, the ordinary roadways, are big enough for these horses to travel?—As a general rule they are.

6142. As a general rule?—Certainly.

6143. You have had no complaints?—I have had complaints. I have made complaints in particular cases—exceptional cases.

6144. As an inspector you have always felt that it was your duty, or rather, humanity would lead you to protect these animals?—As far as possible.

6145. (*Mr. Ratcliffe Ellis.*) Was there not a man committed for cruelty to animals and sent to prison?

(*Mr. Enoch Edwards.*) Mr. Atkinson has had considerable experience, and knows about this. It is said that in many of these roads there is a foot deep between the sleepers for the purpose of horses travelling, and but for that the horse could not travel. Mr. Atkinson will know if it is correct. There are statements made that in many of the roadways the horse gets his foot over the sleepers, and but for that he could not get on his journey at all. I have seen such cases occasionally where the road had been lowered in that way, but it was probably only a temporary expedient.

6146. (*Mr. Ratcliffe Ellis.*) What are exactly your duties at present in South Wales?—I think to advise and consult with the District Inspectors, and to make inspections personally.

6147. Are you an additional inspector there?—Yes.

6148. Have you superintendence over the whole of the district, or any allocated part of it?—Over the whole of two districts.

6149. Supposing there is a question of a prosecution, does the inspector consult with you before he institutes the prosecution?—Yes. A case has not arisen yet, but I have no doubt he would do so.

6150. This is a new departure?—Quite.

6151. Have you any prescribed duties?—Yes, I have some written instructions.

6152. I think you said that you considered it was advisable, in the interests of safety and discipline, that the status of the chief inspectors should be maintained?—Of the inspectors generally.

6153. You do consider that it is important that the status of inspector should be maintained?—Yes, I do, and improved, I should say.

6154. It is a matter of consideration how far that status is maintained and improved by having some other inspector immediately supervising him?—Yes.

6155. With reference to assistant-inspectors, you think they should have more scientific knowledge?—Yes, I think the standard ought to be raised.

6156. Is there an examination for assistant-inspectors?—Yes.

6157. Not the examination for the certificate?—No, a Civil Service Examination.

6158-61. Is that the character of examination prescribed by the Home Office?—That is not within my knowledge.

6162. With reference to General Rule 1, you think it would be desirable that there should be some standard of ventilation, and that the present provision in General Rule 1 is not sufficient. Would it meet your views if General Rule 1 were left as it is, and in General Rule 7, which is the Rule directed to safety, it should be a little more clearly defined as to what a dangerous accumulation of gas is requiring the men to be withdrawn?—If the conditions could be satisfactorily defined I think it would.

6163. That would meet your views. Is it not in that Rule that the definition is wanted, if at all. That is the Rule which provides for the safety of the men, and that they should be withdrawn in certain conditions. The other Rule is a Rule under which people are fined?—I think the proper place for it is the first Rule.

6164. You admit there is great difficulty in putting a standard there, but in that first Rule there might be a case in which the cap appeared, and yet the circumstances might be such as the Court might think a man ought not to be fined; but if you put it in General Rule 7 then the men would be brought out and no harm would happen?—Would there not be the same difficulty in putting it into Rule 7 as there is in Rule 1?

6165. Still, if it is to be put at all Rule 7 seems to be the rule to put it in, so that the men may be brought out, rather than in Rule 1, which is a rule of penalties?—Rule 7 would be a rule for penalties if the men were not brought out.

6166. If they are brought out no harm happens to the men. They are brought out in safety?—I think that is a point that is worth consideration.

6167. Upon the question of fines, do you know what becomes of these fines as a rule?—They are usually given to some club or hospital.

6168. Do you know of any case in which they are put into the employers' pocket?—No, I do not think they ever are.

6169. They are given to some institution, or parted with in some way?—In all cases that I am aware of.

6170. Now, upon this charter-master system, there is no objection to contract to get coal in itself *per se*?—No.

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 1906.

6171. Your objection is where coal is contracted to be got by a charter-master, who, as Mr. Edwards put it, runs the pit?—My objection is to that man or his employee being placed in a position where he has to examine the pit and report as to its safety. The Act itself prohibits the contractors from taking that position, and I think that for the same reason a man in his employment ought to be prohibited.

6172. That is only a very small part of the whole question. Is there any reason why you cannot prosecute the owner if you think these offences are committed?—If I found an offence had been committed, I might prosecute the owner.

6173. In the Report you have made there is some complaint that sufficient timber is not supplied sometimes?—That may be.

6174. Then there is a Rule that applies to that?—I have not a copy of that Report.

6175. If we take the question of timber, if there is not sufficient timber, that is a matter that the owner could be summoned for. General Rule 22 says, "Where the timbering of the working places is done by the workmen employed therein suitable timber shall be provided at the working place, gate-end, pass bye, siding, or other similar place," and so on. If that is not supplied, it does not matter whose fault it is; the owner is liable unless he can show he had done all in his power to carry out the Rules. Therefore, that is a case in which, charter-master system or not, the owner can be summoned?—If it could be proved.

6176. If there is not sufficient timber there, that is one very important fact if proved?—Yes.

6177. Then as to another matter, you say "'Butties' are often directly or indirectly connected with taverns and shops, where the miners' wages are spent in the purchase of bad and dear ale and provisions, and large quantities of intoxicating liquor are daily taken into the pits, and given to old and young in lieu of money wages"?—If you will observe that is a quotation.

6178. But it comes with your authority?—As a quotation.

6179. Have you any Special Rules in your district which prohibit intoxicating liquor being taken down the pit?—Not in South Staffordshire.

6180. That is very exceptional?

(*Mr. Enoch Edwards.*) It is a known institution, old brewed ale, half a gallon.

(*Mr. Ratcliffe Ellis.*) I see it is a quotation from a report in 1851—rather a long time since. That is not the custom now.

(*Mr. Enoch Edwards.*) There is a little of it.

6181. (*Mr. Ratcliffe Ellis.*) Do you not find in all Special Rules there is a provision that intoxicating liquor is not to be taken down the pit?—I think in all except South Staffordshire, as far as I know.

6182. Whatever the defects of the charter-master system may be (I am not going to justify or condemn it), if there is negligence, if there is an omission to do what the Act requires, either in ventilating or timbering, or in any other way, the owner is responsible as well as the charter-master?—Yes, I suppose he is.

6183. So that in these cases where this charter-master system prevails, you could proceed against the owner if you chose to do so?

(*Mr. Wm. Abraham.*) If he knew of the case.

6184. (*Mr. Ratcliffe Ellis.*) You never can proceed anywhere unless you know the offence. You must have that to begin with?—That is rather a theoretical view of the matter, I think.

6185. It may be, but still it is the fact?—In practical working it does not always agree.

6186. With reference to the inspections under Rule 4, you think there should be two inspections during the shift?—Yes.

6187. Do you think there is any point in the inspection before the shift, and the inspections during the shift being made by the same person?—There would be some advantage in that. I would not attach very great importance to it.

6188. Upon the question of watering, in General Rule 12 it is provided that in connection with shot firing, "If the place where a shot is to be fired is dry and dusty, then the shot shall not be fired unless one of the following conditions is observed, that is to say: (1) Unless the place of firing and all contiguous accessible places within a radius of 20 yards therefrom are at the time of firing in a wet state from thorough watering or other treatment equivalent to watering, in all parts where dust is lodged, whether roof, floor or sides." You are, of course, aware of that. And then in the Explosives Order there are prohibitions as to the use of explosives. They are permitted upon conditions, and one condition is: "In all coal mines which are not naturally wet throughout, the use of any explosive, other than a permitted explosive as hereinafter defined, is absolutely prohibited in all roads, and in every dry and dusty part of the mine." I understand you want to extend the obligation to water to all mines, whether there is shot-firing or not, which are dry and dusty?—Yes.

6189. That is your view?—Yes.

6190. The German system, from your Report, appears to be that, but with the power to exempt from the obligation to do watering:—"In cases where there is reason to believe that watering would so disturb the surrounding strata as to considerably increase the danger from falls of stone or coal, the watering may be omitted with the special consent of the Mining Board." Would you suggest a similar power of exemption?—I would prefer to see it done as suggested in the Report, not by exemption, but by a definition of conditions under which the watering should be required.

6191. Might there not be cases in which the conditions were such as to require some watering, but where the effect of watering would be of such a character as to get an exemption under a clause of that sort?—A modified system might be required in such cases—an alternative system.

6192. Your opinion is that this question of watering is not sufficiently matured to make any pronouncement upon at the present time?—I think it is sufficiently matured to show the great necessity for watering, or some means to prevent the coal-dust.

6193. Has it got so far as to justify legislation?—I think so.

6194. You think that it ought to be that every mine should be watered in the way that you have described?—Every dry and dusty mine.

6195. Whether there is shot-firing or not?—Yes.

6196. Or gas or not?—Yes, I should take it generally, all dry and dusty coal mines.

6197. Where is the exemption to come in? How is a person where the effect of the watering would be very serious to get exempted? Take a case where there is no gas, but where it is dry and dusty, and where there is no shot-firing, and in which watering would damage his mine?—In a case in which watering would damage the mine, it might be required that the watering should only be done in sections.

6198. How would he get that exemption if there is a general obligation?—He would have to show the watering would injure the roads.

6199. You would give power to have mines exempted?—Yes.

6200. That would have to be done?—Yes.

6201. On the question of shot-firing, are the shots in your district fired electrically generally?—To a great extent.

6202. Do you think the Rules upon electricity which have been issued are generally satisfactory?—I think they are too complicated.

6203. They are too good, are they? Have you any suggestions to make as to how they could be improved upon in the direction of safety?—I think experience will show that they might be simplified.

6204. You would wait for a little more experience before you suggest any alterations?—Yes.

6205. Now, with reference to safety lamps, there was a Rule which you read a short time ago. I am not quite sure that you read the whole of it, but there is a Rule in Lancashire to this effect: "The Manager shall see that locked safety lamps only are used in every coal seam of the mine to which these Special Rules apply in which an explosion of inflammable gas, causing any personal injury whatever, has occurred

Digitized by Google

within the previous 12 months."—Mr. Cunynghame remarked that was like giving a dog his first bite?—Yes.

6206. "Or in which, within the same period, such a quantity of inflammable gas has been found as to render the use of naked lights dangerous." Have you both provisions in your Rule?—I think so. The Rule in the Cannock Chase code is: "In which any explosion of inflammable gas causing any personal injury whatever has occurred within the previous six months or in which, within the same period, inflammable gas has been found in such quantities as to be indicative of danger."

6207. The rule in Lancashire is "Such a quantity of inflammable gas has been found as to render the use of naked lights dangerous." That does not necessitate an injury to anybody. If it has been found in such a quantity as to render the use of naked lights dangerous, lamps must be put in. Would that Rule meet your views?—So far as the quantity of gas to render the use of naked lights dangerous is concerned, it is pretty much the same as the General Rule. It is not a definite fact. One man might say the amount of gas was sufficient to render the use of naked lights dangerous, and another would say a little bit of gas like that is of no consequence.

6208. You must leave something to the management. You agree that the responsible manager must have some discretion?—In many things, yes, but in some things it is better when there is a clear definition.

6209. You are suggesting when gas is found in any quantity?—Such quantity as to be indicative of danger.

6210. Again you have room for a difference of opinion?—Your rule is a better one than mine.

6211. Your own personal opinion is that you would have safety-lamps introduced whatever gas had been seen, however slight?—No, I do not think I expressed that opinion.

6212. Then I misunderstood you. Would this suit you, where it has been seen in such a quantity as to render the use of naked lights dangerous?—In a *dusty* pit I would require lamps to be used if any gas whatever had been seen.

6213. In any quantity?—In any quantity. In a *damp* pit it is another matter altogether.

6214. When once introduced would you prohibit their removal?—Yes.

6215. The Timbering Rules that were established a short time ago provided that the manager should specify by notice for each seam or district of a seam the maximum distances apart at which props or other roof supports at the working faces are to be set. Are the instructions B you have referred as in force at a particular colliery anything more than complying with that Special Rule?—Yes, it goes beyond that.

6216. At this colliery had they a different notice than this immediately after the Special Rules were established for timbering?—It is quite possible those regulations were in force before the Timbering Rules were made. I do not know whether that is so or not. Such regulations were in force at various collieries before the Timbering Rules.

6217. The Special Rule generally adopted now requires a notice like that to be posted up?—No, it requires merely the maximum distances apart.

6218. There must be a notice posted up of the maximum distances?—Yes.

6219-20. Is your complaint that these maximum distances are too far away?—In some cases.

6221. What does that notice do more than prescribe the distances?—It prescribes that each post shall have a lid on it; the use of timber of different sorts.

6222. You must have different sorts for the different sizes of the props. There is no necessity for that rule; a man would have to cut timber to the size that he wanted whether that was there or not. I do not see that that carries the thing any further?—I think the notice goes more into detail than that.

6223. There is an obligation now on the owner to supply timber, and an obligation on the man to put it up, and then the manager has to prescribe the distances under this new rule. I do not see that goes any further than prescribing the distances from the faces at which the timber is to be put up?—I think it does.

6224. Can you show me the particular part in which you think it does; I mean for material safety. Timber of a proper size, of course, must be supplied?—Each prop must have a suitable lid on it. The face timber to follow the buttock close up. Under sprags to be set.

6225. That is provided for by the Act of Parliament, that there must be sprags?—This says "Sprags not to exceed 5 ft apart, and when the holing is over 4 ft. 6 in. under sprags to be set." That is additional. "Cockers in all cases to be put up where the coal is broken"—that is additional.

6226. It all comes to this: You do not think these new rules for timbering have yet quite had a fair chance from the management?—No, I do not think the management have set themselves the task of taking the thing seriously.

6227. Nor the men either?—Nor the men either.

6228. Now as to haulage accidents of course you say it would be very difficult to alter many haulage roads. Would there be any great inconvenience in preventing men travelling on these roads when the hauling arrangement is in motion?—In some cases there probably would not.

6229. Does not that occur to you as a much easier way of preventing accidents than going to the expense of widening the roads?—There are men working on the roads as well as travelling and they are the men who run the greatest risk.

6230. You think regulations would be difficult to carry out for the men who work on the roads?—They would have to be detailed regulations for each particular case almost.

6231. As to the shaft accidents you said there was some invention which stopped the engine. Is that an invention by a man named Bertram?—I think there is an apparatus by a man called Bertram; they call them visors.

6232. Do you know any place where there is such an appliance at work?—Yes.

6233. Has it ever come into operation that you know of?—It has been put into operation purposely, but I could not say that it has come into use.

6234. As far as experiments have gone, it has been satisfactory?—Yes.

6235. You do not know a case where it has actually come into operation?—I do not recall a case.

6236. Upon the rescue stations, you said you thought they should be established in every mining district?—Yes, I think it would be a reasonable thing to do.

6237. And established for the purpose of training men in the use of these appliances?—Yes, and for keeping the appliances ready for use.

6238. Is there an appliance, as far as you know, yet, which has been pronounced satisfactory?—No, I should not say that there is any really satisfactory apparatus.

6239. Would you encourage the establishment of these rescue stations until there is a satisfactory appliance?—Yes, the only way to get a satisfactory appliance is by experience.

6240. Are these stations for the purpose of finding appliances, or for training men in the use of appliances?—For training men in the use of appliances.

6241. You must have some appliance satisfactory or sufficiently satisfactory to justify the expense of establishing a station?—Yes, sufficiently satisfactory.

6242. You think the time has come when the training stations might be set up?—Yes.

6243. Now as to examinations, would you have the questions prepared in London?—Not necessarily in London.

6244. From a centre somewhere for the whole Kingdom?—I may say that I have no very strong views on this question. It is more to prevent dissatisfaction amongst other people that I look at it.

6245. As far as your own view is concerned you would leave things as they are?—There is a great outcry for uniformity. I would not leave them as they are; I would have uniformity of conditions—of qualifications, rather.

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 1906.

6246. Of course, a man does not get a situation on his certificate?—Certainly not.

6247. Before a man is appointed a manager there is a great deal more known about him than that he has got a certificate?—Of course.

6248. You would like to see some system which would secure more uniformity; but exactly what, you have not thought out?—No; I think there might be a Central Board for drawing up written questions.

6249. Would you have one examination a year?—No, more than that.

6250. You would have a Central Board, and District Examinations, and the Central Board send down the examination papers to the district?—I think there ought to be at least four examinations in a year, if not more.

6251. In the different districts in the kingdom?—In the different districts in the kingdom.

6252. Who would give the marks—the local examiners, or somebody in London?—I cannot say that I have considered that question sufficiently to formulate any scheme.

6253. Upon the question of plans have you in your mind the provisions of the Act of 1896, the Coal Mines Regulation Act, which has reference to a plan of an abandoned mine?—Yes.

6254. It is Section 4 amending Sub-sections 1 and 2 of the 38th Section of the principal Act. "An accurate plan of the mine or seam, being either the original working plan or an accurate copy thereof made by a competent draughtsman." Would you be satisfied if such words were put into the 34th Section of the Act of 1887, so as to provide that an accurate plan should be made by a competent draughtsman?

(*Chairman.*) Is it clear that that is the meaning of Section 4? Must it be the plan as well as the copy? Grammatically it is only the copy.

6255-6. (*Mr. Ratcliffe Ellis.*) I am suggesting whether Section 34 of the Act of 1887 might be improved by putting "that an accurate plan should be made by a competent draughtsman." Would not that be sufficient to secure all you want?—No, I do not think it would.

6257. What examination do you suggest a man must pass before he is competent to make a colliery plan?—It might be an examination by the same examiners who examine for certificates, or it might be an examination by some recognised institute.

6258. Have you in your mind any institute? You would not say a man should not be allowed to make a plan unless he held a certificate of competency?—As manager—no, I would not require that.

6259. You think it would have to be some new examination a man would have to pass before he is competent to make a plan?—There is an examination by the Institution of Surveyors, but whether that is a suitable examination I do not know, or whether they would undertake a special examination for mining surveyors. My point simply is that there should be some guarantee that the man is competent, more than saying that he must be competent.

6260. Those words in the Act of 1896 will not be sufficient for you, "competent draughtsman"?—No, I do not attach much importance to that.

6261. In these plans of collieries the lessor's surveyor examines as well as the lessee's to see what coal has to be paid for?—Yes; there is a difference in that respect, though, whether they are paid by the acre or paid by the ton.

6262. Generally they are paid by the acre?—I should think it is the other way.

6263. Where they are paid by the acre that is a very good check on the accuracy of the plan?—Yes, it is a check; and I believe under such conditions the plans are better kept.

6264. Upon the question of the plan of an abandoned mine all you want is to have the plan available, I suppose, either that you should be able to see the plan at the mine or, if it is abandoned, that it should be visible at the Home Office?—Yes.

6265. Then until a mine is abandoned it is provided in the Act now you can see the plan at the mine?—The question is when the mine is abandoned.

6266. Until it is abandoned Section 34 seems to be clear?—There is no definition of "abandonment."

6267. I do not want a definition of "abandonment." If you look at Section 34 you will find that "The owner, agent, or manager of every mine shall keep in the office at the mine an accurate plan of the workings of the mine, showing the workings up-to-date not more than three months previously." If the mine is worked the plan is at the mine, and you can see it?—Yes.

6268. If it is not at the mine, then it is an abandoned mine?—That does not follow.

6269-72. Then there is an offence committed as against Section 34. You think that is not sufficient?—No, I do not think so.

(*Mr. Wm. Abrahams.*) Is it possible to carry out Section 34 with regard to plans? When the mine is not working for twelve months, and it is not clear whether it is abandoned or not, how is it possible to carry out that Section? Is it possible?

(*Mr. Ratcliffe Ellis.*) I do not see any difficulty.

(*Mr. Wm. Abraham.*) "The owner, agent, or manager of every mine shall keep in the office at the mine an accurate plan of the workings of the mine showing the workings up-to-date not more than three months previously." Supposing that mine has not been working for twelve months, and it is not clear that it has been abandoned, and the inspector goes there to see it, how is it possible to keep this mine up to three months when it has not been working for twelve months?

(*Mr. Ratcliffe Ellis.*) There is no working to put on.

(*Mr. Wm. Abraham.*) Then this Section wants improvement at once.

(*Mr. Ratcliffe Ellis.*) I do not see it. You can only put what workings there are on the plan. If you can see at the colliery all the plans of the mine that is all you want to see. If you cannot see it at the colliery you want to see it somewhere else—at the Home Office. If there has been no working for twelve months you cannot see it, because there are none to put on.

(*Mr. Wm. Abraham.*) The probability is that there is no one at the colliery. We want the plan to be kept elsewhere.

(*Mr. Ratcliffe Ellis.*) You can see it at the mine. That is the point. Whatever you can see at the Home Office you can see at the mine.

(*Mr. Wm. Abraham.*) You agree there may be nobody at the mine, if the mine has been stopped for twelve months, to let the inspector see it.

(*Mr. Ratcliffe Ellis.*) We are at cross-purposes. A mine may be a seam. Supposing there are six seams, and one has not been worked, you can see at the mine the whole information, which you could not see if you went to the Home Office.

(*Mr. Wm. Abraham.*) Where the mine is not limited to a seam or two. Take a shaft.

(*Mr. Ratcliffe Ellis.*) If you have cleared everything away from the mine there is no question that it is an abandoned mine.

(*Mr. Wm. Abraham.*) You think so, and the inspector finds it difficult to know when it is abandoned.

(*Witness.*) There are many cases where the plant is not all cleared away. The plant remains there for years.

6273. (*Mr. Wm. Abraham.*) What is your difficulty—to know whether it is abandoned or not?—Because the owners say it is not abandoned, although it has ceased working. There is no one at the place; it may be full of water. The owner says: "It is not abandoned. I intend to work this colliery again."

6274. (*Chairman.*) There may be no office, and yet it may not be an abandoned mine. The owner may tell you he has taken away the office because there is no work being done, and that he intends to resume work very soon?—Yes.

6275. And as there is no office there is no plan. Mr. Edwards' point is that he may go to the mine and be told it is not abandoned, and yet not be able to get the plan because there is no office.

(*Mr. Ratcliffe Ellis.*) I do not think anybody would suggest the plan should not be available somewhere,

Digitized by Google

either at the mine or at the Home Office. It makes no difference to the inspector whether he sees it at the mine or at the Home Office.

(*Mr. Smillie.*) You have heard two or three inspectors say there is great difficulty in knowing whether a mine is abandoned or not.

(*Mr. Ratcliffe Ellis.*) I have not heard the inspectors say they could not get to see the plans.

(*Mr. Smillie.*) They have raised the same difficulty as Mr. Atkinson, that the office may be away altogether.

(*Mr. Ratcliffe Ellis.*) If the inspectors said: "We have found a difficulty in getting inspection of these plans," there might be some reason why they should be sent to the Home Office.

(*Witness.*) An inspector may have no object in wanting to see the plan at that particular time, or for years, but if that plan is not sent to the Home Office within a reasonable time of the stoppage of the pit the danger in it is forgotten or overlooked, or gets into hands where it cannot be followed, and such cases have arisen.

6276. (*Mr. Wm. Abraham.*) Have you heard that was the case in the inundation of Glenavon, in South Wales?—I do not remember the particulars of that case.

6277. Have you known personally, or have you heard from other inspectors of a case or cases where lives were lost because of inaccurate plans, and that the plans were not to be found anywhere?—I have heard of loss of life from inaccurate plans, and that plans of old workings could not be found; but whether they were plans that ought to have been deposited at the Home Office I cannot say.

6278. Do you think if these plans, when mines are abandoned, were sent to the Home Office directly it would be a great improvement on the present condition of things?—Yes, if it was made certain that they were sent.

6279. You have been examined on Rule 1. Do you think that that rule is carried out in fiery, dry, and dusty mines where the fans are slackened down in the night-time?—That I could not say without knowing the particular circumstances, but I do not approve of such a practice. I do not think it is usual in fiery mines to slack the fan at nights.

6280. Supposing you found out that it was done, would you condemn it as an Inspector?—As a general practice I would.

6281. You said something which I did not quite grasp the meaning of, that the idea of securing safety from falls of roof and the necessity for timbering is not strong enough in the management and the workers, and also that they were not interested in the matter?—No, I do not think they do take sufficient interest.

6282. They are not careful enough, you mean?—No, they do not think about it sufficiently. They have got so accustomed to run certain risks that they think it quite reasonable and proper that those risks should be taken.

6283. I understand you to mean that neither the management nor the men pay sufficient attention to what should be done to avoid these accidents by falls?—Yes.

6284. In your experience are the accidents increasing or decreasing?—They seem to be about stationary; they are not decreasing.

6285. Is the proportion of accidents among young men increasing more than among older men?—No, I do not think so.

6286. Not in your experience?—No.

6287. Have you heard of districts where it is so?—It has been so occasionally in some districts, but I think for a considerable number of years past the proportion has been fairly steady, and with a slightly lower death-rate to the boys than to the men. The difference is trifling.

6288. Perhaps you have not had yet sufficient time to pay attention to this matter in the district?—I see the figures every year.

6289. For the last few years?—Yes, for the whole country.

6290. If you have seen the figures, do they carry out that idea or not, that the accidents are on the increase on the roads since haulage machinery has been extensively used?—I thought you were talking about accidents generally to young persons. What you mean, I think, is accidents to young persons by haulage. I do not think there is any appreciable variation of late years in that respect. Mr. W. M. Atkinson. 14 Nov. 1906.

6291-3. How long does it take, in your experience, to have special rules changed or improved under the present process?—That depends upon circumstances a great deal.

6294. Taking every circumstance into consideration, what is the average time it takes?—To obtain an alteration of the Special Rules?

6295. Yes?—From six months to two or three years.

6296. In your experience is it not time that that mode should be changed and made easier?—Yes, I think it is very desirable that it should.

6297. You have had great experience with firemen, no doubt. What is your idea of the character of the inspections that these men should make in their districts in order to fulfil their duties under the Mines Act?—The chief points they should attend to would be the safety of the roof and the state of the timbering, and the ventilation.

6298. That examination should be conducted in the travelling roads as well as in the working faces?—Yes.

6299. Have you had any experience with the districts to be examined by firemen are somewhat large for them to make this examination an efficient one?—Yes, my attention has been called to such cases, or I have found them.

6300. Would you think it necessary that something should be put in the Mines Act saying that these districts should not be of such dimensions as to make it impossible for these men to carry out their duties properly?—I think if it was required that there should be at least two inspections during the shift that that would secure the end, or, at any rate, it would go a long way towards preventing the firemen having too large a district. X

6301. (*Mr. Smillie.*) There is a great difference in the length of the hours in different districts. In one case it is 6 or 7, and in another 10 or 11?—Yes. If any reasonable definition could be found it would be a good thing, but I think it would be very difficult to frame words to make a reasonable rule.

6302. (*Mr. Wm. Abraham.*) In a general sense would there be any difficulty? Of course, it would be left to the management and the men to work it out in detail; but, in a general sense, in order to give the Inspector further power to see that it is carried out, would there be any difficulty?—I do not much care for rules that are not capable of being definitely applied.

6303. To require two inspections is, you think, the most likely way of remedying this evil?—Yes, I think it is. X

6304. If I have heard you correctly, you have no doubt whatever that efficient watering is a preventative of explosions expanding in collieries where they do occur?—Yes.

6305. Hence that is your reason for recommending a better system of watering?—Yes.

6306. With regard to the testing of lamps and so forth, do you think it is possible that sudden falls of roof, liberating firedamp, may cause a perfectly sound safety-lamp to be suddenly filled with gas and the gas being driven through the gauze causes an explosion, and yet leaves the lamp unimpaired?—Yes, I believe that is possible, and more probable with some forms of lamps than others.

6307. That difference would arise between a shielded lamp and a lamp without a shield?—That would be one element, and another would be whether it had one or two gauzes.

6308. You believe such an explosion might occur?—Yes, with some forms of lamps.

6309. A question was asked with regard to coroners' courts. Are you satisfied that all the facts relative to

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 1906.

accidents, especially explosions, are brought out at coroners' courts?—In nearly all the cases I think that is so.

6310. Have you always agreed with the findings of the coroners' courts?—No.

6311. Have you any way in your mind by which that court could be strengthened?—It is rather a difficult question. A coroner's court does not seem to me to be an ideal court for the investigation of technical matters, such as mine accidents, but it is perhaps difficult to get a court that would work better on the whole.

6312. Seeing what your experience is, is it not necessary that some other court should be established where men of experience, men of technical knowledge, and experts should be the judges, and not men without any mining experience at all?—Well, there might be advantages from that.

6313. Can you suggest how that matter could be met. Accidents happen at sea, and there are inquiries where expert men are appointed by the Government to investigate the circumstances. Do you think it is quite as necessary to have a court similar to that in the case of serious accidents in mines?—The coroner's court does not decide in the sense that the courts that you are referring to decide, so far as I understand it. The coroner's court does not commit a man to prison or take away a man's certificate or fine him. It only finds a verdict and leaves the further steps to the Inspectors.

6314. Nor have they the ability to find out the facts in the same sense?

(*Mr. Ratcliffe Ellis.*) They have power to commit a man for manslaughter, if there is a case.

(*Witness.*) They do that occasionally.

(*Mr. Wm. Abraham.*) Have you seen any other court carrying that verdict much further?—We had one the other day in South Wales, and it miserably broke down. We want some official to appeal to, or constitute another court, to give the miner and the mineowner, if you like, the same justice in the case in the same way as the shipowner, say, and the mariner?—I do not feel competent to devise such a court.

6315. Take the question whether such a system is not desirable, and leave the divising to somebody else?—There is a good deal to be said for it, perhaps.

6316. I think, in answer to Mr. Edwards, you said you think you have the power necessary under the present law to carry out your duties. Let me put to you a case that has happened, although probably not in your experience, but you will hear of it, where all the conditions put to you by Mr. Edwards have been existent for months:—The inspector, finding such a condition of things that he recommended safety-lamps to be put in a colliery, the recommendation not carried out, and in that very colliery an explosion, where a number of lives were lost. The inspector told us he had no power to enforce the lamps. Do you think he had?—It would depend upon the frequency with which gas had been found, I should say.

6317. Would you tell me what power he has?—He might be able to proceed under General Rule 8, though, as I have mentioned, that Rule is unsatisfactory.

6318. You think it needs strengthening?—Yes, if it is possible to do it.

6319. Just one question with regard to the inspectors. You have been speaking of the class of inspectors, and I think you expressed the opinion that it was desirable that assistant-inspectors should have higher technical knowledge for the purpose of efficiency of inspection. Do you not think, if you had at your command a number of experienced men—colliers, with thorough working experience—that your staff of inspectors would be strengthened?—If it was desired to increase the number of inspections very much, that would be a satisfactory way of doing it.

6320. (*Mr. F. L. Davis.*) On that point I understood you to say earlier that you thought the qualifications of assistant-inspectors should be rather higher than they have been?—Yes.

6321. And more scientific knowledge should be required?—Yes.

6322. And I was going to ask you (Mr. Abraham asked this question) if you were in favour of two classes of assistant-inspectors? I judge from your first answer you thought that all ought to be of a higher technical standard?—So much depends upon what is intended or expected in the way of inspection. If you are appointing assistant-inspectors with a view to promoting them to be chief inspectors, I say they should be men of considerable scientific attainments, or ought to have as high scientific knowledge as can be secured. If you want to have a number of inspectors simply for the purpose of making underground inspections, then Mr. Abraham's suggestion is as good as anything else.

6323. Those working men that Mr. Abraham suggested, I suppose you would have them qualify in some way—pass some examination?—Yes; there is no reason why they should not.

6324. Would you think it better that they should pass the same class of examination as assistant-inspectors?—No; I do not think so.

6325. That would mean having two classes?—That would mean having two classes of assistants.

6326. You would have two classes of inspectors. Do you think there would be no difficulty in that at all?—I think very likely there would be difficulty.

6327. You gave it as your opinion that the qualification should rather be raised?—But I say it altogether depends upon what you require or expect in the way of inspection.

6328. I put it to you in this way: I should imagine even a working-man inspector might be an exceptionally intelligent man. If he were in a different sort of grade from the ordinary assistant-inspector, and never had the chance of becoming a chief inspector, he would not care for that position.

(*Mr. Wm. Abraham.*) He would have different wages, as well as a different grade. He would be satisfied.

(*Mr. F. L. Davis.*) I say you might possibly get a working man who in time would be quite capable of becoming a chief inspector. I want to put the point: If there are two classes, you debar him ever getting to the position of a chief inspector?

(*Mr. Wm. Abraham.*) It does not follow at all.

(*Mr. F. L. Davis.*) Under this arrangement it would, I take it.

(*Witness.*) He would be required to pass an examination.

6329. Afterwards?—To pass an examination afterwards, I should say.

6330. You would not confine that second class of inspectors to working colliers then, I presume?—No; I do not think working colliers would make the best men for the purpose.

6331. Anybody would, so long as sufficiently qualified?—It would be, probably, more likely a fireman, or an under-manager, or even a manager.

6332. Not necessarily a working man?—No; not necessarily a working man—not necessarily a man who has done nothing else but get coal.

6333. Being a working man would not disqualify him; but you would allow other people, as well as a working man, to take that particular class of work?—Yes.

(*Mr. Wm. Abraham.*) He must have a knowledge of mines.

6334. (*Mr. F. L. Davis.*) He must be a practical man, and be qualified. With regard to watering, when you were in Germany did you get any information at all with regard to the effect on the health of the men of thorough watering in the mine?—The main question with reference to health was ankylostomiasis.

6335. I was really meaning apart from that. We have heard of it in connection with that?—We did not learn that there were any ill-effects so far as health was concerned.

6336. You mentioned in your statement this morning the recent accident at the Albion Colliery?—Yes.

6337. You said there were a certain number of safety lamps in the neighbourhood of this fall, and an electric-light apparatus?—Yes.

Digitized by Google

6338. What was the nature of that?—For relighting safety-lamps.

6339. Did this occur close to a relighting station?—At a relighting station.

6340. I only wanted to know really why the electric light machinery, or whatever it was, was at the particular place?—It was at the station where it was kept.

6341. With regard to shaft accidents, I thought it understood you in your statement to say you had not had sufficient experience of the working of these safety appliances to recommend any?—I was referring to grips, for catching the cage in case the rope breaks.

6342. Afterwards you thought there ought to be something in the Act making some safety appliance compulsory where you took 40 or a large number of men up or down at one time?—Yes; I would have some special requirements for safety there.

6343. Do you recommend any particular appliance?—I think the automatic regulator, or visor, might be one precaution in such cases.

6344. Do you consider those appliances sufficiently reliable to insist upon that being used by Act of Parliament?—Well, I have not had very great experience with them, but as far as my experience goes, it is favourable to the apparatus, and they have been more or less in use for years.

6345. It is taking a little responsibility to say in the Act that you must use a certain thing?—Quite so.

6346. Unless it is very reliable?—That is a matter for further inquiry, perhaps. The detaching hook, of course, is much more generally used, but that only protects the ascending cage. One of these automatic regulators also stops the engine before the descending cage has dashed to the bottom.

6347. Mr. Abraham asked you if you did not think teh Coroner's Court might be improved—or I think he said that the jury should be improved—and he asked you if you had found yourself disagreeing with the findings of a coroner's jury? I suppose that a great many people might say that. There will always be some people who disagree with the findings of the jury?—Certainly.

6348. And even if this other Court of Inquiry Mr. Abraham suggests of mining experts, I think, were formed, then some people would disagree with the finding of that Court.

(*Mr. Wm. Abraham.*) The "some people" are not inspectors.

6349. (*Mr. F. L. Davis.*) Even then there must be a difference of opinion?—Yes.

6350. One has heard of even mining engineers or mines inspectors differing occasionally?—Yes.

6351. (*Dr. Haldane.*) You have given special attention to dust explosions, I think, for a long time, have you not?—For a number of years.

6352. You and your brother, Mr. J. B. Atkinson, are the authors of this book on colliery explosions?—Yes.

6353. I should just like to direct your attention to the plan of the Seaham Colliery showing the positions in which the bodies were found. I think this plan in the report is copied almost exactly from your book. It is in my Report on Causes of Death in Colliery Explosion.* The explosion here originated by a shot on the curve on the intake airway, I think, close to the downcast shaft?—Yes.

6354. The explosion traversed the whole of the intake roads of the mine to within varying distances from the face?—Three separate intakes.

6355. That is to say, it traversed roads on which it was almost certain there was no gas, or extremely improbable that there could be any gas?—Practically impossible, I should say.

6356. These roads were dry and dusty?—Yes.

6357. The dust was the only cause that could have explained that explosion, in your opinion?—I think so. Another marked feature there was that the return airways, which were free from coal dust, were also quite unharmed by the explosion.

6358. The dust, I suppose, came partly from the tubs and partly, I think you mention in your book, carried down from the screens on the surface?—Somewhere near the shaft; it was carried from the screens, no doubt, and all along the roads from the tubs.

6359. Looking at the Maudlin Seam in the bottom right-hand corner of the plan, at this place (*indicating*) I think the bodies of 25 men were found together after the explosion?—Yes, at the bottom of the incline.

6360. And about 15 others were scattered about the incline?—Those men had lived some time after the explosion.

6361. That was shown, I think, by the evidence of the writing on a tin which was found on the body of one of the men?—The tin belonged to one of the men up that incline.

6362. The writing was a message to his wife?—Yes.

6363. Which he wrote when he was dying?—Yes.

6364. In it he mentions that there were 40 men altogether at 7 a.m. Is not that so? That is written on the bottom?—Yes.

6365. "There were 40 of us all together at 7 a.m." That was five hours after the explosion. The explosion was at 2. I think that is stated?—Yes, it was very early in the morning.

6366. These 40 men were blocked off there by the after-damp, which was in the haulage road?—Yes.

6367. In this other part of the seam there was another group of, I think, about 30 men, perhaps, or so, who were similarly apparently cut off?—Yes. Those men had not been killed by the explosion, so far as I remember. This part was not reopened for a long time.

6368. They had been trying to escape by the return, apparently?—It looks like it.

6369. Going to another working face in the Huttons Seam, there was a group of 15 men *here*, and 10 men close beside them, and others scattered about beyond the limits of the explosion, and they also had been shut in by the after-damp?—They also had been shut in by the after-damp. The explosion did not get into the part of the pit they came from, either.

6370. There was a group of 14 men *here*, going to another working-face; they were also shut off?—Those men had run a very short distance, or a comparatively short distance, and were killed by after-damp.

6371. *Here* was another group in another working-face, of 13. I suppose that was the same story?—Yes; the explosion did not reach the working-face there; in fact at Seaham Colliery the explosion did not reach the working-face in any district.

6372. All these men were killed?—Killed by after-damp.

6373. In trying to escape?—In trying to escape.

6374. After the explosion?—Yes. The men up this incline had waited a considerable time.

6375. It was not known how long, I suppose?—No; only it must have been several hours, by the writing.

6376. At least. That is a common thing in colliery explosions, that the men who are at the face, where the explosion does not penetrate to the face, are cut off?—That frequently happens.

6377. Because the road they would naturally travel by is full of after-damp and falls?—Yes.

6378. That state of things would have been prevented by watering the haulage roads?—Yes, the haulage roads and intakes. They generally are intakes. They are the roads the men naturally take for escape.

6379. This is the plan of Park Slip explosion, which was also investigated by you in conjunction with Mr. Robson. At the No. 8 stage of the slip the flame had gone right to the face, I think?—Yes.

6380. And killed the men at the face?—Yes.

6381. While elsewhere the flame had again traversed only the intake or haulage roads. Is not that so?—Yes, that is so.

6382. It went up the slip, probably?—Yes, and did not go up the return.

6383. In many parts of the mine it left the working-face free?—It did not reach them.

6384. There were a very large number of men shut in as shown in the next diagram. Some escaped there,

* Causes of Death in Colliery Explosions and Underground Fires. By J. S. Haldane, M.D., 1896. C.—8112

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 19. 6.

I know?—About 16 of them escaped, I think, after having been shut in for a number of hours.

6385. Is not that from the North Fawr Seam, which is in the next diagram.—Some escaped there I know? —I do not remember the exact district where they escaped from.

6386. In any case there again men were shut in by after-damp, and a very large number perished in the after-damp while trying to escape?—Yes.

6387. They ran into it. The explosion followed the haulage roads?—Yes.

6388. There was no practical doubt that it was a dust explosion as regards its extension?—As regards its extension along the intake air roads.

6389. Although originating, probably, by a small explosion of gas?—Yes, I think it was.

6390. The same fact can be seen in the case of the Albion explosion, more or less?—I am not so well acquainted with the Albion.

6391. You were there?—I was down the pit once or twice.

6392. These arrows show the direction. Roughly in the Albion the explosion had followed the haulage roads?—It followed the haulage roads, but I believe in some cases, at any rate, it had also been in the returns.

6393. Some of the returns are haulage roads?—I do not remember much of the details of this.

6394. Here also you can see a large number of men ran into the after-damp after the explosion?—That is the case in nearly all large explosions.

6395. Here there is a group of 37 bodies found altogether, and some other groups of 8, 9 and 10, at various places?—That is a very common thing in explosions.

6396. If the explosion were prevented from traversing the haulage roads you would not have these things happening. I mean, is not a haulage road in your opinion the most dangerous part of a mine in which to have an explosion?—There is no doubt about it.

6397. If you prevent that by watering you get rid of that danger?—It would remove a great deal of danger.

6398. It is usually by the haulage road that the explosion spreads from district to district in the mine? —As a rule it is.

6399. So that by watering the haulage road you could very largely diminish the danger from colliery explosions?—Yes, I think so.

6400. You could practically prevent the occurrence of large colliery explosions?—In many cases that would be so.

6401. Can you think of any accident which has happened in which it would not have been so?—There have been cases, I think, where the returns were so dusty that the explosion would have passed by them.

6402. That was so in the case of the explosion in the Cambrian Collieries. I have it here?—The returns were traversed by the explosion there, I think also at the National. I should judge so from the plan.

6403. At the National the returns were actually the haulage roads. I have it here (*producing plan*). I think you will find the haulage roads were returns in that case. It is stated so?—Yes, that may be so.

6404. But the flame also traversed the intakes there, I think, according to this map. In the case of the Cambrian Collieries explosion in 1905 the returns were traversed by the explosion. I think you will see that in this map. There (*indicating*) are the directions of force?—Yes, they seem to have been. There is no question that in some collieries the returns are sufficiently dusty, and the dust is sufficiently inflammable to carry the explosion.

6405. Supposing that the return was traversed by an explosion, and they are not haulage roads, do you think an explosion travelling along the return would very greatly endanger the lives of the men?—Not to the same extent as on the intakes.

6406. In that case, for instance, this return was traversed?—If the intake had not been traversed the men would have escaped.

6407. Would you say that is so in practically every big explosion, so far as you can tell?—In the great majority of them I think that is so.

6408. I cannot think of any one in which it is not so. I have searched carefully. I do not know whether any occurs to you?—No; no particular case occurs to me, but it is easy to imagine.

6409. It is conceivable?—It is conceivable that it would be so.

6410. Can you tell us whether, in the case of the Courrières explosion the explosion followed the haulage road in the usual manner?—Yes, generally it did.

6411. It is difficult to see from the plan which you publish which are the returns and which are haulage roads?—It did traverse the haulage.

6412-4. It did traverse the haulage roads, as a rule? —Yes.

6415. That was what made it so very fatal?—Yes, and its large extent; it passed into different pits.

6416. Do you think that an explosion with the same loss of life as at Courrières might happen at any time in England just now?—Yes, I believe it is possible.

6417. In the absence of watering?—In the absence of watering.

6418. Supposing, for instance, that the Albion Colliery had been dry just now, with the accident which occurred last Saturday there——?—That occurred when only 60 men were in the pit altogether.

6419. I believe it might have occurred in the day shift. It was an accidental fall of roof, I understand, on the main road?—During repairs.

6420. You think it was brought down by the repairs? —The falls were.

6421. Still, some accidental cause might lead to an ignition of gas?—Yes, and in a dusty pit if the explosion does take place the probability is that all the men in the pit will be killed.

6422. At the last explosion at the Albion, the big explosion of 10 years ago, when, I think, 290 men were killed, practically every man in the pit was killed, was not that so?—I believe that is so.

6423. I believe only three or four escaped. If that occurred in the day shift it would have meant 1,000 men killed?—It might in a large pit.

(*Sir Lindsay Wood.*) Where did it take place?

(*Dr. Haldane.*) It started with a shot, probably, on the main intake road, and simply swept the whole place.

(*Sir Lindsay Wood.*) In the intake road or at the face?

6424. (*Dr. Haldane.*) It started from blasting with dynamite on the road. That was the conclusion?— They were blowing timber out with dynamite.

6425. (*Sir Lindsay Wood.*) As a matter of fact you never get an explosion of coal dust in the face. Do you remember a case?—The West Stanley explosion began at the face, but there was, no doubt, some proportion of gas there. The explosion was extended by coal dust. At Ebbw Vale an explosion began at the face. There have been numerous explosions beginning at the face, but in all cases there would, or might be, more or less firedamp.

6426. (*Dr. Haldane.*) With regard to the watering of haulage roads in dusty mines, do you think it is important that any regulation should exactly specify that the roofs and sides of every part of the road should always be kept wet or damp?—Yes; if the watering is not thoroughly done it would only be a snare rather than a safeguard.

6427. If the watering were only done once a day and the dust dried in between, it might be a snare?— Yes, and if only the floor was watered it would be of no avail.

6428. There is a good deal of watering just now which is ineffective?—Of no practical use, I think.

6429. For that reason?—For that reason, because it is not thorough.

6430. It would be necessary to lay down definitely that the roads and roofs and sides should always be kept moist?—Moist or damp.

Digitized by Google

6431. Did you study the Report of the Cambrian Collieries explosion which occurred, I think, last year?—Yes, I have read that Report.

6432. In that case there were pipes laid for watering all along the mine, and the mine had been watered on the day before the explosion?—I do not remember that.

6433. It is stated in the Report. The waterpipes go right up here (*indicating on plan*)?—Yes, there was a considerable length of road laid with waterpipes, nearly up to the face in different districts.

6434. And yet that did not save the colliery. The explosion traversed the whole of the intake roads which had been watered, did it not?—Some of them, at any rate. I should say in that case the watering had not been sufficient.

6435. Had not been sufficiently often repeated I suppose you would say?—Either that, or not properly done at all, perhaps.

6436. It had been done once that day apparently. The explosion was in the evening?—If it had been done that day it could not have been done sufficiently.

6437. Do you not think it might very well have dried up in the course of the day if it had been done sufficiently?—I would not have expected that it would in 10 or 12 hours.

6438. At any rate, that example shows that it is very desirable that watering should be efficient and thorough?—It is most important; it is no use without it. I have seen some of the watering in South Wales. There are pits with long lengths of pipes in, but in my opinion the use made of the water is not sufficient to prevent an explosion in most cases. The roads are not thoroughly done. There is any amount of dry dust on some of them.

6439-40. In your opinion it is very desirable that definite regulations as regards watering should be introduced?—Certainly.

6441. (*Sir Lindsay Wood.*) Irrespective of blasting or anything?—Irrespective of blasting or the use of safety-lamps.

6442. (*Mr. Smillie.*) It is the case that an explosion of firedamp usually goes in the face of the incoming air current. Is that established as a scientific fact?—I do not think it is. I think that opinion arises from the fact that an explosion of firedamp beginning at the face has followed a track of coal dust on an intake and haulage road.

6443-6. Have you known or heard of the explosion following the ingoing air current, where there is no coal dust known to exist?—I have heard of such cases. I should expect it rather to have gone the other way, because the current would carry the gas in that direction.

6447-9. After it overcame the explosion. The haulage road is not generally the air course, I think?—It is generally the intake.

6450. Have you known of cases in which it was neither the intake nor the return airway?—Very few.

6451. Do you know the Maclaren pit, Abertysswg colliery in Wales?—No, I have no personal knowledge of it.

6452. Do you know that a serious explosions took place there two years or two and a half years ago?—I remember the explosion.

6453. Did you read the report of that?—Yes.

6454. Do you know that the haulage road there was not the intake or the return airway?—No, I do not recall the details.

6455. Do you know whether or not it was a dry and dusty mine—the Maclaren pit?—My impression is that it was a dusty mine, and that it was watered, but I have not seen that report for a long time. I do not remember the details.

6456. You said that in the West of Scotland there was a considerable amount of sub-contracting?—I say I thought so.

6457. You are perfectly correct?—I have no personal knowledge of it; it is only from information.

6458. Is it your experience in Staffordshire that where the sub-contractor for coal-getting takes a part of a colliery or a whole pit that they employ their own workmen themselves?—Yes.

6459. Irrespective of the manager or the employer?—Yes.

6460. Is that in accordance with the provisions of the Mines Act?—So far as I know there is nothing in the Act to prohibit it.

6461. Is there nothing in the Mines Act to prevent persons going into the mine without the knowledge of the manager or under manager?—It does not follow that they go in without his knowledge.

6462. If they are employed without his knowledge, and go in without his knowledge, is that in accordance with the provisions of the Mines Act?—I would have to look at the Act to be able to say exactly.

6463. Aside from the provisions, do you think it would be desirable, where a sub-contracting of coal takes place, that it should be within the power of the contractor to take persons into the mine without the knowledge of the manager or under-manager?—I think it would be properly met by some Special Rule rather than by the Act.

6464. As an inspector of very long experience, I want your opinion on the question of whether or not a sub-contractor for coal-getting should be allowed to take any person whom he cares to employ into the mine without in the first place satisfying the manager as to those persons being employed?—No, I do not think so.

(*Mr. Ratcliffe Ellis.*) There is nothing to prevent an owner of a mine employing whom he thinks fit. He cannot relieve himself of the responsibility of having incompetent men doing responsible work, but there is nothing to say he shall not let anybody he likes go down the pit.

6465. (*Mr. Smillie.*) There is a provision in the Act to prevent him employing unskilled persons from getting coal. I am dealing with getting coal?—The manager should certainly be satisfied as to anyone employed in getting the coal, that the requirements of the Act are complied with.

6466-7. (*Mr. Smillie.*) Where a sub-contractor or a charter-master had the whole output of the pit, and took unskilled men down and started them to work, that would not be complying with the Act, if started not under the supervision of a skilled man, but alone?—That would be a breach of General Rule 39.

6468. If the manager did not know who was in the mine he could not be responsible. He would be held responsible, I know. Are you in favour of engine-winders holding a certificate of competency?—I see no objection to it. I would rather leave it to the men themselves to say whether they thought it was necessary.

6469. At the present time it is entirely in the hands of the manager?—I have not had occasion to think that the present winders are not competent. They are a very careful, steady class of men, I think.

6470. I am sure you have found that universally they are competent, but it is possible that from time to time an incompetent person might be employed?—Yes, I suppose there is that possibility.

6471. Would it not prevent that if they held a certificate of competency?—Even that would not make it absolutely certain, because it depends as much upon the man's physical capacity as anything else.

6472. Does not the fixing of a qualification make it certain that a mines inspector is competent?—It guarantees a certain amount of competency, at any rate.

6473. And would it not be the same in the case of an engine-winder?—Yes, I suppose it would.

6474. There are collieries, I think, in Europe in which 140 men may be in the shaft at the same time—70 ascending and 70 descending?—That is a greater number than I have heard of before.

6475. You have been lately in Westphalia?—Yes.

6476. Are you aware that there is a colliery there where 70 men may be raised in a cage at the same time?—I did not hear of that.

6477. I have not my information first-hand, but from the Secretary of the Miners' Association. Certainly the number is increasing. The number is greater to-day than it has been at some of our large collieries?—That is so.

Digitized by Google

Mr. W. N. Atkinson.

14 Nov. 1906.

6478. Have you ever known of a case in your own personal experience of an engine-winder taken suddenly ill while his engine was in motion?—I have heard of such cases.

6479. There have been accidents from this, I think?—No, not accidents, so far as I am aware.

6480. You have not heard of a case where over-winding took place because of the sudden illnesss of the engine-winder?—I do not recall a case of that sort.

6481. Do you think the work of an engine-winder to-day is more exacting than it used to be because of the large outputs and speedy winding?—I can quite understand that.

6482. Is there a system at present, so far as you know, in force in which the day-shift engine-winder requires to lower the men in the morning and raise the same shift of men at night again?—Yes, I have known instances.

6483. After having wound coal all day?—Yes.

6484. He has to raise the men at night?—Even after a longer time at the week-ends.

6485. A double shift?—Yes.

6486. Would you be in favour of placing two engine-winders in charge of an engine where a considerable number of men were being raised and lowered at the same time, in order that if anything went wrong an accident might be prevented?—Yes, I have thought that might be an extra precaution, but it is perhaps open to question whether the risk is so great as to necessitate it.

6487. Do you know of any colliery at which an ambulance wagon is kept at the present time?—Numerous collieries.

6488. Is it kept by the employer?—Yes.

6489. Do you know of cases in which the workmen in the district keep ambulance wagons for their own use?—No, I do not.

6490. Have you heard of cases in which workmen have bled to death on the way home, being taken home in a cart?—I have known cases where they were taken home in an unsatisfactory way. I do not think evidence was ever given that they bled to death.

6491. You do not know of any cases of that kind?—No.

6492. The special timbering regulations have not been satisfactory, I think; I mean the results you expected from them have not been satisfactory?—No.

6493. You say that neither the managers nor the men have taken the interest in those rules which was necessary to give satisfactory results?—That is so.

6494. Do you know whether or not the workmen were consulted in the drawing-up of the Special Timbering Rules?

(*Mr. Ratcliffe Ellis.*) In what district?

(*Mr. Smillie.*) In any district.

(*Mr. Ratcliffe Ellis.*) They were in certain districts.

(*Witness.*) I think they were in Staffordshire.

(*Mr. Ratcliffe Ellis.*) They were in Lancashire, and, I believe, in South Wales and in Yorkshire, too.

(*Mr. Smillie.*) After they were drawn up?

(*Mr. Ratcliffe Ellis.*) They were drawn up by the Home Office.

(*Mr. Smillie.*) The workmen had nothing to do with the initiation of the Rules.

(*Mr. Ratcliffe Ellis.*) Neither had the owners.

6495. (*Mr. Smillie.*) Do you think it would be wise on the part of the Home Office to take the men and the owners into their confidence in the drafting of Special Rules for the safety of the workers underground?—Yes, I think it is very important that agreements should be come to as to the rules as far as possible on the part of the owners and the workmen.

6496. And the inspectors?—And the inspectors.

6497. Do you think that that agreement should be come to after the rules have been initiated and printed rather than before they were initiated?—They must be initiated by some person or body. They could hardly be initiated by agreement.

6498. Or at a joint meeting?—I do not think the exact form in which the matter is carried out is of great importance.

6499. You think the present system is satisfactory?—No, I do not.

6500. You are of opinion that the working plans of the mines should be made out by competent draughtsmen?—I think the surveyors should hold some certificate to show that they are competent.

6501. Surveyors should hold some certificate proving that they are competent persons?—Yes.

6502. Would you say that the same thing should apply to a colliery fireman?—I do not see any harm in it, but I do not see any necessity for it.

6503. Is not your reason for saying that a draughtsman should hold a certificate of competency, in order to prove his ability to draw up proper plans? Is that not the reason?—Yes.

6504. Is it not really in the interest of safety of life that the plans should be properly drawn in order that no mistake should be made?—Yes.

6505. It is in the interest of life-saving underground?—Yes.

6506. Does not the fireman who examines the place in the morning take into his hands every morning the lives of the men under his charge?—I think it is a matter of opinion to a large extent to what extent these certificates are beneficial.

6507. You would not say the same thing about a colliery manager?—No.

6508. You really think it necessary a colliery manager should hold a certificate?—It is not necessary, but it is an advantage on the whole.

6509. It is so necessary that the Government will not allow a person——?—It is necessary under the Act, of course, but whether it is necessary from an ordinary point of view is another question.

6510. I have no doubt that there are persons who do not hold certificates who would make quite capable colliery managers?—Yes.

6511. Do you think that the best class of men in the mines at the present time are appointed as firemen, generally speaking?—Yes.

6512. Generally speaking, the best class of workmen are appointed?—Yes.

6513. As an Inspector, what do you think is a proper inspection of a mine by a Government Inspector?—Well, to inspect and see that the mine is safe, as far as possible. That is the object, at any rate.

6514. If you reported to the Home Office that you had inspected a mine, would it mean that you had traversed the intake and return airways and the main roads and the haulage roads, and all places where persons travelled, and also the working faces?—If I was reporting to the Home Office as to the inspection of the mine, I would state what part I had inspected.

6515. If you reported that you had inspected a mine, would it mean that you had inspected all the workings in a mine?—Not necessarily, no

6516-8. I would like to have your definition as to what an inspection of a mine is?—The term "inspection" is used in different senses.

6519. Would you say an Inspector who had visited a working place where a workman had been killed, and come back to the bottom and ascended to the surface, had made an inspection of the mine?—No, it was an inspection of part of the mine.

6520. I was dealing with the inspection of a mine. Can you give a definition?—I should distinguish between thorough inspection or a complete inspection, and an inspection of certain parts.

6521. I suppose there is no doubt that mining legislation during the past 40 years has led to the greater safety of underground workers?—Yes, I think so.

6522. The percentage of accidents to the number of people employed has gone down considerably?—Yes.

6523. I suppose you would say that Government inspection has gone a considerable way in assisting to bring that about?—Yes, I think so.

6524. Do you think that additional inspection would mean additional safety?—Yes, to a certain extent.

6525. I think you stated you did not place much importance on inspection by workmen?—Not so much importance as some people do.

Digitized by Google

6526. If practical working men who are otherwise competent made a thorough examination of a mine, and pointed out dangers which they found existing, would that not be of importance to the workmen if those dangers were attended to and got rid of?—Yes.

6527. Do you know whether or not an inspection of that kind has ever led to dangers being removed?—I have no doubt it has.

6528. Would that not be important?—Yes.

6529. Have you ever heard of workmen who have been appointed to inspect mines complaining of insufficient ventilation?—It is many years since I had anything to do with such reports.

6530. Is it one of the purposes of the Government in giving men power to appoint inspectors to ensure greater safety?—Yes, I suppose so.

6531. Are you in favour of the employment of women and girls about mines?—No; I think they are better away.

6532. Are there many employel in your present district of South Wales?—There are some, I believe, but I am not prepared to say what proportion.

6533. Is it usually at picking tables?—Yes, and cleaning coal.

6534. You do not think it is a nice employment?—No, I do not think it is a proper employment for them.

6535. Have you any knowledge of unskilled labour in mines in South Wales?—No, there has been nothing to call my attention to that particularly so far.

6536. Would you say that the the employment of persons who did not understand the English language tended to safety?—No, I should say not.

6537. Would you say it tended to make the mines more dangerous?—It might be so.

6538. Take a given mine. If there is a mine employing 400 men, and 150 who go down in the morning do not understand any English—do not understand the fireman who gives them their orders, or the manager—do you think that would cause that mine, other things being equal, to be more dangerous than it otherwise would be?—I think it might be so.

6539. (*Mr. Ratcliffe Ellis.*) I suppose you nave men in your district who do not understand English?—Yes.

6540. Welsh?—I do not think a great many. They can usually speak both languages.

6541-2. (*Mr. Smillie.*) Whether Welsh or Irish or English, if they do not understand the language, I suppose it would be more dangerous? Would it not be more dangerous to employ a deaf and dumb man than a person who could speak and hear?—Yes, I should say it would be.

6543. You have not personally had a great experience of unskilled foreign workmen who do not understand the language?—No.

6544. You have not come in contact with them yourself?—No.

6545. If the Government made up their mind to employ an additional number of Inspectors, who were, or had been, practical working miners, and paid them as Inspectors of a lower grade, do you think that that would tend to greater safety in the mine—suppose those men made periodical examinations?—I think it would tend to greater safety if men of a higher class were employed, and fewer of them.

6546. By "men of a higher class" you mean greater scientific knowledge?—Yes.

6547. Even than the present class of Inspectors?—Yes.

6548. If they did not inspect, would it tend to greater safety?—No, they must inspect.

6549. Really, it is inspection that tends to the carrying out of the Mines Act. When the inspector is going to come there is a great preparation made and timber taken down.

(*Mr. Ratcliffe Ellis.*) I do not think Mr. Atkinson would say there is great preparation made for the Inspector coming.

(*Mr. Smillie.*) I hear of it in different parts of the country.

6550. (*Chairman.*) Do they always know you are coming?—They do not know, as a rule, when I am coming.

6551. Do you find any difference when you come to inspect with notice and without notice?—No, not generally speaking. In fact, I could not say that it was different in any case. It may be.

6552. (*Mr. Smillie.*) If your attention was called to an existing danger at a colliery, or deficient ventilation, you would not give notice to the employer that you were going to make an examination?—No.

6553. Supposing you were going to make an examination on your own responsibility, is it not the case that most inspectors do give notice as to their coming?—I do not.

6554. Do you know of any others who do?—No; I do not know what they do exactly.

6555. You have never given notice to employers as to your intention of going to examine the mines?—In some cases, yes.

6556-7. Under any special circumstances?—For some particular reason.

6558. Did you think it is general for inspectors to give notice?—No, I think it is general for them not to give notice.

6559. Have you read the rules or the law with regard to workmen's inspection in France—I mean the new law passed two years ago?—Yes, I think I have seen it.

6560. Those workmen inspectors are appointed by the workmen?—I believe they are selected by the workmen.

6561. I think that is th proper way to put it, selected by the workmen and appointed by the Government?—Yes.

6562. And paid by the Government?—Yes, I think that is so.

6563. I suppose, even in France they have not had sufficient experience to know whether or not they are justified in trying that experiment. The time is so short?—Probably not.

6564. You have no information on the matter yourself?—No.

Digitized by Google

TWELFTH DAY.

Thursday, 15th November 1906.

PRESENT:

Lord Monkswell (*Chairman*).
Sir Lindsay Wood, Bart.
Wm. Abraham, Esq., M.P. (Rhondda).
F. L. Davis, Esq.
Enoch Edwards, Esq., M.P.
Thomas Ratcliffe Ellis, Esq.
John Scott Haldane, Esq., F.R.S.
Robert Smillie, Esq.

S. W. Harris, Esq. (*Secretary*).

Mr. Richard Donald Bain, called and examined.

Mr. R. D. Bain.

15 Nov. 1906.

6565. (*Chairman.*) I believe you are the Inspector for District No. 4, the Durham District?—I am.

6566. How long have you been Inspector?—I was appointed in August, 1877.

6567. So that you have had nearly 30 years' experience?—Yes. I have been 10 years in charge of the Durham District. I was in the South-Western District to begin with.

6568. As Assistant-Inspector?—Yes.

6569. As Chief Inspector you have been the whole time in Durham?—Yes.

6570. Before that were you in the South-Western District for 19 years?—Yes.

6571. Those are the two districts that you know?—Yes.

6572. Do you consider that you are able to make as many underground inspections as is desirable in your district, or do you think that the district is too large?—When three of us are in full work we can get through the work fairly well. This year I have not been able to do as well, because I have been without one of my assistants. I have only had one assistant for about the last four months, instead of two.

6573. Was your other assistant ill?—He went away. He was promoted to Staffordshire.

6574. So that for some time you have been short-handed?—Yes.

6575. Was it impossible for you to get another assistant?—I applied to the Home Office, and I believe a gentleman is going to be appointed at once.

6576. So that you have been nearly four months with only one assistant?—Yes.

6577. Consequently your work is a little behindhand?—It is.

6578. But if you had two assistants you think you could get along fairly well?—Yes, fairly well.

6579. With regard to clerical assistance, I suppose you get the usual £25 a year for that?—Yes.

6580. Do you find that that is sufficient?—I do not. I am obliged to get a good deal of outside help.

6581. That you have to pay for yourself?—Yes. It is necessary to do so in order to keep up with the work.

6582. So that you are somewhat out of pocket, and £25 does not cover your expenses?—Hardly.

6583. As regards correspondence, do you think it necessary to dictate or to write, or, at all events, to supervise every letter that is written?—I write a great many of them myself, and I supervise all the correspondence. Sometimes my assistant would draft a letter for me, and in that case he sends it to me for signature. All the correspondence goes through my hands.

6584. What do you think would be a fair amount to allow you for clerical assistance; what amount do you think would cover your expenses?—I never went into the matter. The handiest arrangement, if it could be made, I think, would be to have a young man to come in, perhaps, for three hours a day, or something of that sort.

6585. You would like to have the services of some fairly skilled clerk, I suppose, for about three hours every day?—For 2½ or 3 hours every day.

6586. You think by that means you would get through your correspondence satisfactorily?—Yes, especially if he could write shorthand; one could dictate a lot of letters to him and so on, and he could leave them for my signature.

6587. You have three assistants?—No, two.

6588. But I see, according to your statement, your assistants were Mr. Plummer, Mr. Walker, and Mr. Johnstone?—Mr. Plummer retired some time ago, and Mr. Johnstone has now gone to Staffordshire. I have now only Mr. Walker as assistant.

6589. Do you consider that two assistants would be sufficient, and that it would not be necessary that you should have three?—The work could be done more easily with three, but we were able to get through with two when both my assistants were hard at work. It is a strain.

6590. Still you think it can be done, and that there have been sufficient underground inspections, and that they have been carried out in an effective manner?—Yes, I think so.

6591. With regard to Rule 38 as to inspection by the men, how far is that carried out in Durham?—Very well. The custom there is for the miners to appoint two of their body, or sometimes more, to go and inspect the pit whenever they think fit to do so. They do not stick absolutely to any specified time. In some cases it is rather difficult to get them to go; if they think the pit is all right they will not inspect.

6592. That is to say, they only think it necessary to go when they suspect that something is wrong?—That is so in many cases; in others they do it periodically.

6593. What do you call "periodically"?—Once in two or three months. They have another system also which is of great value, I think: those same two men always inspect the scene after a fatal accident.

Digitized by Google

6594. Directly after the accident has occurred?—Yes.

6595. But I suppose they are not allowed to interfere with the body in any way, or to move anything?—No; they simply go to see the place, and then they make a written report at once, which is usually produced at the inquest, and they sometimes give evidence and sometimes do not.

6596. Do they always send miners who are working in the particular mine to inspect that mine, or do they sometimes get practical miners from another mine to examine a mine?—It is nearly always done by men from the same mine.

6597. Would there be any feeling if miners from another mine were brought down?—I think very possibly there would.

6598. Do you think that the men who are sent down are, as a rule, good men, who thoroughly understand their work?—Very good men.

6599. How are they paid?—I think they are paid the average wages.

6600. Do you mean the average hewers' wages?—Yes.

6601. Who pays them?—The Miners' Union.

6602. The Miners' Union pay the men just the same rate as if they were hewing coal?—I believe that is so.

6603. In that way they manage to get good men without giving them any extra pay?—Yes.

6604. Do you find that there is any unwillingness among the men to be appointed to inspect?—No, I think not. I have not heard of it.

6605. Do you consider that General Rule 38 is carried out satisfactorily in your district?—Yes. I am very much in favour of the system of men examining the scenes of fatal accidents.

6606. I suppose the men are sometimes able to give valuable assistance to the coroner in the course of an inquiry by means of their reports?—Yes.

6607. And I suppose they are called as witnesses sometimes?—They are called as witnesses sometimes. Very often they are on the spot a very short time after an accident has occurred. With regard to their pay perhaps I had better make further inquiries, and if I am not accurate in what I have said I will correct it.

6608. You are not sure with regard to that point?—No, I am not sure; it is only my impression.

6609. (*Mr. Enoch Edwards.*) Is it not more likely that they pay them from the local Checkweigh Fund?—Possibly. I could not answer the question positively. I was rather treating that as part of the Union Funds.

6610. (*Chairman.*) Do you consider that, in fact, not only this practice with regard to the men going down directly there is a fatal accident and looking into the matter themselves, but that the whole system of working men's inspection is well carried out in your district and is very valuable?—I do.

6611. Supposing there was an accident which was a non-fatal accident, but at the same time a bad accident in which a man was seriously injured, would the men in all cases, or in most cases, send down someone to investigate under those circumstances?—Not in all cases, but they would in some. It is not always known whether an accident is very serious, to start with.

6612. But if the men knew that there was a serious accident, although it did not result in any loss of life, they would probably wish to go down and inspect at once?—The local inspectors would probably go.

6613-4. With regard to Rule 38, which says that the persons so appointed shall be allowed once *at least* in every month to inspect the mine, I imagine that that means that they may go down as often as they please, but it is rather suggested that they should go down once a month?—Well, I am not sure of that.

6615. It is provided that they should go down once a month *at least*, so that I imagine the rule does not limit them to going down once a month. At all events they go down when they like in your district, and if there was a fatal accident they would go down directly?—Yes.

6616. Whether they had been down during the month already or not?—Yes. On any special occasion they would ask permission from the management. If they thought there was anything wrong, or if they had had any complaint from their own body, they would ask permission.

6617. But would it be necessary to do more than tell the manager that they were going down. The manager could not prevent them going down, could he. Of course it means that they must give notice?—They must give notice.

6618. Surely if they gave notice the manager could not say "We do not choose that you should go down the mine"?—No; I do not think the managers ever do.

6619. They do not ever do so, but what is your reading of the rule. Do you think they could?—I do not think I have read it in that way.

6620. At all events that is not a practical question which has ever arisen—the men have always been allowed to go down?—That is so.

6621. Is there anything more that you would like to say with regard to Rule 38?—I think not.

6622. With regard to discipline in the mine and supervision by the owners in your district, how is discipline enforced—by prosecution, by fine, or by dismissing the men, or how?—By prosecutions, sometimes by dismissal, and by fines also.

6623. Are you satisfied with the system which prevails, and do you think that men are prosecuted when they ought to be prosecuted, and fined when a fine is sufficiently deterrent, or dismissed in proper cases?—What I usually ask the managers to do is to prosecute in case of a serious offence, and also to prosecute in the case of a more trivial offence if a man has been caught twice. In other cases I think the matter can fairly be met with a fine.

6624. But I suppose you would say that in cases in which a man was guilty of some clear neglect of duty endangering the lives of other people, he ought to be prosecuted?—I should ask that he should be prosecuted then.

6625. Supposing the manager disagrees with you and thinks that a fine is sufficient, have you ever prosecuted a manager for refusing to prosecute a man?—No, I never have.

6626. Have there been occasions when you would like to have done so. Do you feel that you have not power, or is it a thing that you would be unwilling to do, or what is your feeling with regard to that?—We have usually been able to arrange the matter with the management.

6627. And if the manager disagrees with you, you are not inclined to press your opinion too hard?—No, I should not if he had a reasonable answer.

6628. Supposing you considered the manager very unreasonable, do you not think you would be justified in prosecuting him?—I do not quite know under what section.

6629. I suggest you have power under Sections 50 and 51; under Section 50 in the case of a breach of a General Rule, and under Section 51 in the case of a breach of a Special Rule. Sub-section 3 of Section 51 provides (at the end of the sub-section) that "the owner, agent and manager of such mine shall each be guilty of an offence against this Act unless he proves that he had taken all reasonable means by publishing, and to the best of his power enforcing, the rules as regulations for the working of the mine, so as to prevent such contravention or non-compliance." I think that is generally held to give the inspector power if he chooses to do so, of bringing the owner or manager before a magistrate and charging him with not having taken the proper measures, that is to say, the measure of prosecuting the man if he thinks that is the only proper measure to enforce the rules?—I do not think that question has ever arisen in my district.

6630. Then you have not considered the point as to whether it would be within your power to prosecute an owner or manager if he refused to prosecute a man?—I have not.

6631. Do you think, as a matter of fact, that the system of fines is had recourse to more than it ought to be in the interests of the safety of the miners?—

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906.

No, I do not. I think they are quite reasonable. There are a great number of fines.

6632. Do you mean a great number of fines as compared with prosecutions?—Yes.

6633. Are there many prosecutions?—Not very many prosecutions. The number is published in my Report.

6634. I see you have about an average number of prosecutions and convictions as regards prosecutions of workmen?—Yes.

6635. Although your prosecutions of the managers are rare, prosecutions by the managers are fairly frequent in your district?—That is so. I can give a few figures with regard to some of the larger collieries. At one colliery there were 108 persons fined last year, the aggregate amount of fines being £24 9s. 8d.; at another colliery, 37 persons fined; at another, 63; another, 18; then 11, 11, 45, and 48. One large colliery does not fine at all, it always prosecutes.

6636. Do you find that the discipline is better in that colliery than the others?—I do not think it is. I do not think there is very much difference.

6637. (*Mr. Enoch Edwards.*) Are all these fines for breaches of rules, or do they deal with questions of contract, deductions for dirt, and so on?—Very nearly all would be for breaches of rules.

6638. Of course that is rather the subject which we have to consider. Some of those fines would not be for breaches of rules, so far as the safety of the mine is concerned?—In one of the returns I have here there were 45 persons fined. Those were all fines for breaches of rules, none for contract.

6639. (*Chairman.*) What do you say as to the discipline in your district; how does it compare, for instance, with the discipline in the district in which you were formerly, the South-Western district, for instance?—The discipline in Durham is better than it was in the South-Western district.

6640. And it is fairly good, you think?—Yes, I think it is.

6641. Do you consider it your duty to look over the list of fines agreed upon between the manager and the men, which has to be kept?—I have done so occasionally.

6642. With a view to finding whether there are cases in which a man has been fined where he ought to have been prosecuted, in your opinion?—I think it was more with a view of seeing whether the fines were reasonable.

6643. But would you not also look at those fines with a view to finding out for what sort of offences the fines were inflicted, so that if you considered that a fine was inflicted for an offence for which a man ought to be prosecuted you could suggest to the owner that that man ought to be prosecuted?—Sometimes they consult me about it; otherwise I should be inclined to leave a discretionary power wth the management. Men very much dislike being prosecuted, and it creates friction in other ways; they would accept the punishment of a fine of a larger amount than would be inflicted by the magistrates of the district.

6644. You consider that in the interests of peace as between the management and the men it is just as well not to press too hard for a prosecution?—I think so in many cases.

6645. And you think that in serious cases in your district there has not been any great difficulty in getting the management to prosecute?—I do not think so; I have not found any difficulty.

6646. With regard to General Rule 4 as to inspection by officials, do you think that that General Rule is satisfactory?—Generally speaking, I think it is.

6647. It has been suggested by some of the inspectors that there ought to be two inspections in every shift?—I quite agree.

6648. You think that the rule ought to be strengthened in that way?—I think so.

6649. Therefore you are not altogether satisfied with the rule as it stands?—In several places there are two inspections already. It is not statutory, of course.

6650. Do you think that might reasonably be made a statutory provision?—I do. It would be an improvement.

6651. Do you think that the inspections by the officials, firemen, and so on, are sufficiently thorough?—Yes, I have no reason to think that they are neglected in any way.

6652. The districts which a fireman has to inspect in your part of the world are not too big?—I have had very few cases in which that has been so. I have had a few complaints.

6653. Do you think in those cases that the fireman was unable to get through his duties?—Yes, when the districts have been scattered on far apart. In every case I think they have put on another man and given additional assistance.

6654. Then when there have been complaints, either by the miners or by the firemen themselves, that the inspection districts were too big, you have taken the matter into your consideration and you have always got it remedied?—I have.

6655. Therefore you think that the only suggestion you could make on Rule 4 is that there should be two inspections in every shift?—I think that would be desirable.

6656. With regard to accidents during last year, except, of course, this last very serious accident at Wingate, in your last report there is no fatal accident from explosions of firedamp or coaldust?—No.

6657. There have been only four persons injured; so that if it had not been for this latest disaster your record would have been a very good one?—Yes.

6658. For three years before that there were no fatal accidents—that is to say, in the years 1903, 1904, and 1905?—That is so.

6659. With regard to the Wingate explosion, I hear that you have not quite finished your report upon it?—No, it is not ready.

6660. Would you desire to say anything about it to-day, or to be asked any questions upon it or not?—I am in your hands. I have no notes with me, it would be entirely from memory; the notes are being printed now.

6661. Perhaps, then, you would rather not be asked questions about it?—Possibly it would be better to wait until the report is out.

6662. Is there any suggestion that you would like to make to the Commission either as a result of your previous experience or as the result of the investigation into the Wingate explosion?—I think it would be desirable to go further into the question of compulsory watering.

6663. Then you consider, without going into detail in the matter, that the explosion would not have been so disastrous if the roads had been well watered?—I think that if the regulations as to watering had been carried out there would have been no explosion at all.

(*Mr. F. L. Davis.*) The existing regulations as to watering?—Yes.

6664. (*Chairman.*) There were regulations there as to watering, under the Special Rules?—Yes, under the Special Rules and under the Explosives Order.

6665. And those regulations were not put into practice?—That is so.

6666. But I suppose when you inspect mines you look into this matter of watering?—Yes.

6667. In the course of your experience have you generally found that the watering has been properly carried out, or have you had to remonstrate?—We are constantly remonstrating, more or less. The system of watering has very much increased of late years.

6668. Your remonstrances have had some effect?—I think so, and I think also that there is a general tendency to understand the dangers of dust more than there used to be.

6669. In your opinion, for some time past there has been great danger of serious explosions such as the one that has occurred, owing to managers not being sufficiently alive to the importance of carrying into effect some system of watering?—Yes. I do not think the danger from dust was sufficiently understood, and it is not now altogether understood, I think.

6270-5. I think you told me at first that if the Special

Digitized by Google

Rule as to watering had been carried into effect at Wingate the explosion would probably not have occurred at all?—That is so; but it was not expected that a shot would be fired there. Had it been required to fire a shot there, special instructions would have been issued by the management, and all the precautions for watering roof and sides would have been carried out.

6676. Then I understand you to say that in this particular case it was the fault of the shot-firer entirely that this explosion took place, and that if the shot-firer had given proper notice of his intention to fire the shot the mine would have been properly watered round about?—Yes.

6677. So that in this particular case of the Wingate Explosion, at all events, you say the explosion was not due to any fault on the part of the management?—Apparently not at all.

6678-83. Do you think there ought to be some more extensive provisions as to watering?—I think it would be desirable to go into it carefully.

6684. With a view to suggesting Special Rules?—Yes.

6685. There are no Special Rules as to watering other than in connection with shot-firing, but you think it is high time that steps were taken with a view to discovering whether or not there should be Special Rules with regard to general watering of the mines?—As to some means of laying dust.

6686. Are there a good many mines in your district in which watering is carried out to the extent that you think it ought to be?—Yes, at many of them.

6687. But only some mines where you think the management are sometimes lax in regard to watering?—Yes. Some people still do not believe in danger from dust as much as others.

6688. (*Mr. Enoch Edwards.*) You mean they do not think the danger is so serious?—That is so. Some experiments have just been tried with westrumite, but I think it is going to be too expensive.

6689. (*Chairman.*) Are you in a position to tell the Commission anything about those experiments, whether you think they are satisfactory or not?—It has hardly been in operation long enough now to tell; but it will be very expensive—that is the great drawback.

6690. (*Mr. Enoch Edwards.*) Much more expensive than water?—Yes, a great deal. I think it is £7 or £8 a ton, but I am not sure.

6691. (*Chairman.*) What do you suggest would be an efficient system of watering in your district? Haulage ways ought to be watered, I suppose, not only the floor but the roof and sides as well?—Yes, the floor, the roof and the sides.

6692. If you watered the haulage ways do you think that would be sufficient, or would you also have the wagons sprayed as they go along?—It probably would not be necessary both to water the roads and to spray the wagons.

6693. You think that watering the haulage ways would meet the case?—I think so. You do not get very fine dust in the working faces.

6693* (*Mr. F. L. Davis.*) Has westrumite been used simply on the road itself, or is it used in a spray as well?—It has only been used on the road.

6694. (*Chairman.*) What have you to say as to the difficulties in regard to watering in your district?—Are the floors such that they would be injured by much watering?—If it was done excessively they would, and in some cases the roofs have been affected.

6695. So that in some places there would be some difficulty in watering the whole of the haulage ways?—Yes, there would. In those cases they might brush the dust off frequently; it is not as effective as watering—you cannot quite get it all off.

6696. I suppose most haulage ways could be watered without interfering very much with the roof and floor?—I think so.

6697. Could it be dealt with by what are known as "wet zones"; that is to say, having 100 yards or so perfectly wetted, and then a comparatively dry part?—It is possible that if an explosion occurred the area of it would be limited in that way.

6698. You consider that if an explosion occurred, and you had, say, 100 yards of haulage way thoroughly watered, the explosion would not get beyond that 100 yards. Supposing it occurred in a dry part of the mine and the explosion went in one or the other direction towards the wet zone, do you think the 100 yards of wet zone would be sufficient to stop the explosion, or to stop the flame, at all events?—I am not prepared to say whether 100 yards would be sufficient.

6699. Then if you have these haulage ways thoroughly watered, do you think it would be necessary in that case to introduce any special form of wagon, or do you think that the management might be allowed, if the haulage ways were properly watered, to have any type of wagons they liked?—I think they could use whatever wagons they liked, so long as they watered effectively. There are several types of wagons on the market now.

6700. But where there is a great difficulty in watering the haulage roads, and where you can only water here or there, it would be desirable, I suppose, that the types of wagons used should be such that the dust could not easily escape?—Yes

6701. And the trams should then be watered in order to prevent the scattering about of the dust?—Yes; that is done in some cases. As a rule the trams are well made.

6702-3. With regard to ventilation, what do you say as to the first General Rule? It has been suggested before us that it is rather vague, and ought to be made more definite. Have you any opinion to offer on that point?—If the present requirements are carried out thoroughly I think the rule acts fairly well. Men certainly should not be allowed to work where there is gas; wherever there is a cap visible on a man's lamp he should be withdrawn, or should come out.

6704. We have heard a good deal of evidence with regard to that. The difficulty appears to be to define a cap, and also there is another difficulty, that, in some safety lamps which are fed by naphtha, a cap apparently is visible when it would be invisible in an oil lamp?—Yes.

6705. I suppose you would say that whenever a reasonably defined cap appeared the men ought to be withdrawn?—Yes, I think so.

6706. Whether it was a cap on a naphtha lamp or whether it was on an oil lamp?—Yes; it is the only test the workmen have—the lamp that is in actual use at the time. Possibly the officials might be supplied with a more sensitive lamp to test the condition of the return airways, and so on.

6707. Do you think it would be desirable that when a fireman goes his rounds he should have a lamp that would show a very small amount of gas, much less than the ordinary safety lamp?—I was not alluding to that. I was referring more to the managers, so as to see the conditions of the returns periodically, and to see whether there is any gas in small proportions coming out.

6708. Then you think, with regard to testing the returns, that special lamps ought to be employed which would show a very small percentage of firedamp?—Yes.

6709. (*Mr. F. L. Davis.*) Do you mean that you would have two kinds of lamps in use at the colliery; would you suggest that?—Only an additional lamp for the officials, not for constant use.

6710. (*Chairman.*) That is to say, that every now and then the return airways should be tested by means of a sensitive lamp?—Yes.

6711. (*Mr. F. L. Davis.*) That is occasionally, not for general use?—No—periodically.

6712. (*Chairman.*) Why only the return airways? I understand you think that this testing ought to take place only in the return airways?—It would be a very uncommon thing to get gas on the intakes; that is why I said the returns.

6713. (*Sir Lindsay Wood.*) And the working faces?—The working faces, too, might be tested, undoubtedly.

6714. (*Chairman.*) You think that in the return airways and the working faces occasionally the atmosphere should be tested by specially sensitive lamps?—Yes—simply to guide the manager.

6715. Are safety lamps used all over your district?—Only in mines that give off firedamp. There are some

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906.

mines in my district that give off none at all, in which naked lights are used.

6716. Are you satisfied that the use of safety lamps is sufficiently prevalent in your district?—Yes.

6717. Do you think that all the mines in which there is any danger use safety lamps?—Yes, they have safety lamps.

6718. You have nothing to complain of in that matter?—Very little indeed. There are some mines where, perhaps, they see gas once in three or four years. They have not in all cases put in lamps there; in some cases they have.

6719. What do you say with regard to those cases where they have an occasional blower of gas, or whatever it may be called; do you think it is right that they should go on working with naked lights?—I think it would be far better that where gas has been found lamps should be put in.

6720-1. That where gas has been found at any time safety lamps should thereafter always be used?—Yes.

6722. Have you any screw-lock lamps in your district?—There are still a few remaining.

6723. Do you not think they ought to be done away with?—I do. I have been getting them done away with for some years past.

6724. There are only a few left?—Only a comparatively small quantity left. I think they should be done away with.

6725. Are you satisfied with the Special Rules as to the use of safety lamps in your district?—Yes.

6726. With regard to the construction and type of these lamps, do you think that there might be a central testing-station for testing the type of safety lamps, so that if a man patented a new lamp he could have it tested?—I think it would be a good thing only to allow certain lamps to be used—in the same way that explosives have to be permitted.

6727. You think there should be a central testing-station, and that the types of lamps should be tested at that station, and that only certain types of lamps should be authorised?—Yes.

6728-9. In the same way as explosives?—Yes.

6730. Have you had any accidents in your district which have been due to defective types of lamps?—I do not think we have—not due to a defective type.

6731-2. Have you had any accidents owing to lamps not being properly examined—for instance, lamps going down without a gauze on them. We have heard that that has occasionally happened?—I do not think it has caused an acident so far as I remember. It has occurred, I know.

6733. What other form of accident from lamps have you heard of due to the lamp being in a defective state when it was taken down into the pit?—I cannot recall an accident.

6734. Then, as far as your district is concerned, and so far as your knowledge goes, the examination of lamps has been satisfactory?—Yes.

6735. With regard to shot-firing, do you think it would be necessary or desirable to prohibit shot-firing during shifts altogether?—It would be very difficult indeed to do so.

6736. It would be very difficult in your district?—Yes, we could hardly do it.

6737. You have several Shot-Firing Rules, I understand?—Yes; and in addition there is the Explosives in Coal Mines Order.

6738. Then with regard to firing a lot of shots simultaneously, do you think that ought to be permitted?—In certain cases, in driving stone drifts or sinking pits, it is desirable.

6739. But you would not have more than one shot fired at a time in the coal itself?—No.

6740. Is that prohibited in your rules?—The rule reads: "When more than one shot is to be fired in the same place the examination specified under General Rule 12 shall be made before and after the firing of each shot."

6741. That would prohibit the simultaneous firing of shots?—Yes.

6742-4. Do you think it would be advisable that that Rule should be in force throughout your district?—Yes. It would be desirable to amalgamate these rules all together.

6745. Then in point of fact you have three different sets of rules and four Special Rules in force in your own district?—Yes, three, and a Special Code for Cleveland. That is four altogether.

6746. A Special Code for Cleveland, and three different Codes for the coalmines?—Yes.

6747. You think that the Coalmine Rules might well be amalgamated?—I think so, or certainly reduced to two—one for naked-light collieries and one for fiery mines.

6748. Then you consider that this Special Rule with regard to shot-firing should be made to apply all over your district?—I think so, except in cases of drifting or sinking.

6749. I see you have had a large number of accidents from falls of roof and sides last year, according to your report, and that there were no less than 153 persons injured and 41 persons killed?—Yes.

6750. How does that compare with previous years?—I have a table in which I have taken out the numbers of accidents at the face only.

6751. Nearly all them, I see, are in the face, but there are some on roads?—Yes.

6752. These are only in the face?—In 1905 22 persons were killed; in 1904, 22; 1903, 24; then 18, 22, 21, 27, 18, 18, 17 for the previous years respectively.

6753. It seems to have been rather worse than usual last year; there were 31 on the face, but then there were 10 others on the roads?—Yes.

(*Mr. F. L. Davis.*) There might be more men employed now than there were a few years ago?—There would be a considerably greater tonnage worked.

6754. (*Chairman.*) The tonnage has increased. I see, taking the death rates, 1905 is not worse, but it is the best during the last five years. There has not been a very great deal of variation—0.79 per 1,000 persons employed in 1904 is the largest number of accidents, and in 1905 it was 0.57, being the smallest number during five years. It is slightly below all districts except Newcastle and Midland districts. To what do you attribute this large quantity of accidents from falls?—It is difficult to say. I think partly it might be due to the men relying too much on the specified distance at which they have got to keep their timbers, and not using their own discretion sufficiently.

6755. Therefore you are rather of opinion that these specified distances which are posted up lead the men to be careless, and that they do harm rather than good?—Yes. If the specified distances are excessive.

6756. Do you think it ought to be left to the men or to some sort of official who looks after the men to decide for themselves in each case what sort of timbering ought to be done?—The distances are specified, to begin with, but there may be a slip come into the roof, where a man certainly ought to timber. But I have heard it said, "Oh, it is all right; 4ft. is our distance; it is quite safe." I have a strong belief in systematic timbering; I am sure it will do good in the long run.

6757. What do you think would be the best way to meet that—to make the maximum distance between the props less or to make no rule in the matter at all, but simply leave it to the men, supervised, perhaps, by some minor official, to put such timber as they consider desirable in the circumstances of the case?—It must be left to the individual man in a great measure. The circumstances of the place are always altering, and the man in the place is the only one who can know it. But I think that the additional examination during the shifts which was spoken about just now—the extra supervision would do good.

6758. Therefore you would be inclined to say that no rule ought to be laid down with regard to the maximum distance between props, but that it ought to be left to the men themselves, properly supervised, to do the timbering properly, and to put such timber as they thought right?—No, I would keep the maximum distance as it is now.

6759. And to make it even closer, perhaps?—Closer, if necessary.

6760. You would have a maximum distance?—Yes.

6761. Beyond that you would have a strict system of supervising the men in putting up timber?—Yes.

Digitized by Google

6762. You would have a man going round?—Yes, the deputy, who does go round now, at least once during the shift.

6763. (*Mr. Wm. Abraham.*) I understood the timbering in Durham was mostly done by deputies. Is that so?—Yes, but the men set a lot of timber, too.

6764. (*Chairman.*) The deputies go round and supervise?—The deputy sets the timber in the first instance, and then, if the place gets out of order while he is away, the workman has to timber his own place.

6765. Then the deputy would come round, I suppose, pretty constantly to see that the timber there was in good order?—He is now obliged to go round once during the shift.

6766. You think he ought to go round twice?—Yes, I think it would be an improvement.

6767. Your view, then, is that the Rule should be altered by decreasing the maximum distance between the props, and that there should be a deputy going round at least twice in every shift to see that the props were efficient?—I should like to see it provided that the deputy should go round twice during the shift. The distance between the props must be left to the management.

6768. But I thought you said you would have the present Rules altered, and would make the maximum distance less?—Only in certain individual cases, where I found the distances excessive. It would be impossible to make one Rule for the whole district.

6769. You think there are individual cases where there might be Special Rules for a particular colliery?—The distances vary at various collieries and at various seams in a colliery now.

6770. The distances are governed by Special Rules, but the Special Rules apply to a large number of collieries, do they not? They do not apply to one or two?—The Timbering Rules vary at each colliery and each seam in a colliery. The manager fixes the distance apart at which each support shall be set for each seam or district.

6771-3. But is there not a Rule which says that the props must be set a certain distance from each other?—That is under the General Rule.

6774. General Rule 22, with reference to spragging, provides that "The distance between the sprags or holding props where they are required shall not exceed 6 ft." That is statutory. Do you suggest that General Rule 22 ought to be amended by making the 6ft. a less distance?—I should take out the words "where they are required," and make it compulsory.

6775. You would make it read, "The distance between the sprags or holding props shall not exceed 6ft., or such less distance as may be ordered by the owner, agent, or manager"?—Yes.

6776. Then do you suggest that your Special Rules with regard to timbering ought to be amended in any way, or do you think it would be sufficient if the deputies went round twice during every shift, under the Special Rules as they stand?—I think that would be sufficient.

6777. You do not consider that the owners or managers being required to fix a maximum distance as applying to any particular mine renders the miners in the mine more careless, and inclined to think that if they comply with the requirements of the manager that will be sufficient? You think the system is satisfactory as regards having a maximum distance settled by the management?—I believe sometimes it has been the case that a man has relied upon the maximum distance without using his own judgment.

6778. Do you think it would be well that the present system should continue, of the management setting a maximum distance, or do you think that it should be left altogether to the deputies when they go round to settle it?—No; I think a maximum distance should be left.

6779. Do you think that as a rule the maximum distances settled by the managers are reasonable distances?—In most cases they are.

6780. I suppose if you thought the maximum distances were not reasonable you would remonstrate with the management, and try to get them to alter the Rule?—I have done so, and they have reduced them in several cases.

6781. Then you think that the owners and managers are reasonable in your district with regard to that matter?—Yes, quite.

6782. With regard to haulage accidents and shaft accidents. I see last year you had five deaths and four persons injured from shaft accidents. I see also that a large number of persons were run over or crushed by trams or tubs. No less than 77 persons were injured last year and 14 persons killed in this way?—Yes.

6783. How would you deal with these haulage accidents which happen to persons who are run over or crushed by trams and tubs? They seem to be by far the most numerous?—It is a question which it is very difficult to deal with. The increase of mechanical haulage is very great now, and we have also a system of using ponies in the face, and the boys very often get injured by jumping on and off the limbers or by a tub getting off the way, or something of that sort.

6784. Is there a system in your district of catches, so that if the coupling broke and the tubs were to run back they would be stopped automatically?—Yes, on inclines where there is a gradient they have some appliances of that sort.

6785. Is that so all over the mines in your district?—I think it is so.

6786. And you think that system ought to be adopted?—Yes, it is a proper precaution. You asked me how these accidents could be dealt with. In new mines it would be quite possible to make a separate travelling road and to keep the men off the engine planes altogether.

6787. You think that ought to be done in all the mines?—Yes, as much as possible; it would certainly be a great safeguard. Men are often run over, principally through carelessness, by reason of their not going into the refuge holes provided for them and waiting until the tram has gone by.

6788. It has been suggested to us that that could be obviated by having the roads made wide enough so as to have a 2ft. way on one side, and always on one side of the main haulage roads, so that whenever a man met a truck he could get out of the way?—If the roof was good enough, it would certainly be better—if the roads could be driven a sufficient width without difficulty.

6789. You think in some places that would be impossible?—It would be difficult.

6790. It would in all cases be expensive?—It would be very expensive.

6791. Then you suggest that the men should in all mines be kept off the haulage roads as far as possible?—Yes, that they should have separate travelling roads.

6791*. There has been another suggestion made—that the entrances to the refuge holes should be whitewashed?—I think that is rather a good plan.

6792. Is that done in your district?—Not universally.

6793. Do you think it ought to be done?—I think it would be a very good thing.

6794. Have you suggested it to the managers?—I have in some cases.

6795. Have you any other suggestions to make upon that point?—I do not think I have.

6796. With regard to shaft accidents, I see there have been no accidents last year from overwinding or ropes or chains breaking, but there have been five deaths from other causes.?—Yes

6797. What have you to say with regard to overwinding?—We have very few such cases indeed.

6798. Do you think that the persons who have charge of those engines are generally properly qualified persons?—They are very good men indeed as a rule.

6799. Would you be in favour of having some sort of compulsory test imposed upon them, so that no man should be in charge of a winding-engine unless he fulfilled certain qualifications, or do you think that is unnecessary?—I have not seen any necessity for it so far. There are very few accidents indeed. They are very good men.

6800. Has your attention ever been called to ma-

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906.

chinery to stop the cages, supposing the rope were to break—for instance, machinery to clutch the wood guides?—I do not think we have any in operation in the district.

6801. Then you know nothing about these appliances? There are various patents, I believe?—Yes, there are several patents out. Such appliances are rather inclined to come into operation when they are not wanted sometimes, and so to create an accident rather than prevent one.

6802. Then you think it is as broad as it is long, and that they might create as many accidents as they would prevent?—I think so. I believe in a detaching hook for disconnecting the cage in case of an overwind.

6803. You think that ought to be made compulsory?—I think it might with advantage.

6804. Are there detaching hooks in most of your mines?—Yes; I think all the high-speed engines have them, or nearly all.

6805. You think that might be made obligatory?—Yes, with an engine running over a certain speed. In a very small, shallow pit they would be of little use.

6806. With regard to the establishment of Special Rules, how would you suggest that Special Rules ought to be established? At present there is rather a cumbrous system involving arbitration, which takes a very long time. There is also another objection to the present method, which is that whenever you open a new mine, as I understand, Special Rules have to be expressly proposed for that new mine?—Yes.

6807-8. Do you think that ought to be necessary? Do you not think that the Special Rules might be made to apply to every mine opened in a particular district, unless there was some reason to the contrary, and that it should lie upon the owners or managers to give some reason why the usual Special Rules applicable to the district should not apply in their case?—Yes, I do not think there is any difficulty in that.

6809. You think that Special Rules might be made to apply to a district, so that if a man opened a new mine in that district the Special Rules should at once come into operation when he began to work that new mine?—Yes; I should think that would be satisfactory.

6810. With regard to the question of arbitration under the Factory Act in the case of regulations for dangerous trades, the Secretary of State has power himself, after hearing all that is to be said on both sides and holding an inquiry, to make any regulation he thinks expedient. Do you think it is desirable that there should be arbitration, as there is at present, in making Special Rules under the Coal Mines Act, or do you think the Secretary of State should have power, after listening to everything that can be said on behalf of the owners, the miners, and other people interested, to confirm or not to confirm the Rules?—It practically creates him the umpire in an arbitration, having heard the owners' side, the men's side, and the inspectors' side.

6811. He is the umpire in that case—he is the paramount authority?—Yes.

6812. Whereas now the Secretary of State cannot insist upon any Special Rule being applied to a mine if the owners disagree. If the owners do not agree with the Secretary of State's view, and if there is any difference of opinion between them, the Secretary of State is obliged to go to arbitration. That is the difference between what takes place under the Mines Regulation Act and what takes place under the Factory Act. Under the Factory Act, the Secretary of State is paramount, and his will is law. I want to know whether you think it desirable that the Factory Act practice should be extended to coal mines?—I have not considered it fully. I think it might, perhaps.

6813. You think it reasonable that the Secretary of State, being, of course, obliged to hear what is to be said on both sides, should, after he has heard it, have it in his power to decide?—You mean without any appeal.

6814. Yes, without any appeal. You agree, do you? You think he might be allowed to do that without any appeal?—I think he might.

6815. With regard to these Rules, I understand that what happens now is that the owner or agent proposes a particular Rule, and posts that Rule up; and the first that men know of that Rule is when it is posted up in the mine?—Yes.

6816. And they have to make their objections to the Rule, if they have any, after it has been practically decided upon by the management?—Yes.

6817. It has been suggested on behalf of the men that they ought to be allowed to have some say with regard to Rules before the management have taken the step of posting up the Rule. For instance, if the management desires that a certain rule should be put in force in a mine, that they should have some sort of conference or meeting with the men, and should hear what they have to say before the Rule is posted up?—In the event of a revision of the Special Rules, I think that should certainly be done.

6818. You think that is a reasonable thing to do?—Yes; I think the men should be consulted.

6819. Before the matter has gone so far as the posting up of a Special Rule, or the alteration of a Rule by the management?—When the Rules are revised again there will probably be a joint committee of the owners and men sitting together.

6820. You think, in the ordinary way, there would be such a conference or committee in your district?—Yes.

6821. You think that the owners would not meet together and suggest an alteration of the Special Rules, without letting the men know about it until the Rules were actually posted up?—No; there would be a joint committee.

6822. You think that in Durham, at all events, there would be some sort of joint conference?—Yes.

6823. That is the case in your district?—It was arranged for practically some time ago, when a suggestion was made as to revising the Rules. It was postponed on account of this Commission, so as to allow its Report to be issued first.

6824. As a general practice, when there is a revision of Special Rules, do the management simply meet themselves and make such alterations as seem good to them, without consulting the men, and then post up those Rules; and is it a fact that the first thing the men know about the alteration of those Rules is when they see the alteration posted up?—I do not think there has been a case of revision of Special Rules in my district. Where a mine was opened the Special Rules applicable to mines in that portion of the district would be established.

6825. But do you not from time to time alter these Special Rules?—No, they have not been altered for a long time—for many years.

6826. So that you really do not know what the management will do in such a case?—That is so.

6827. The point is, whether the men ought not to have some sort of preliminary meeting with the management before the Rules can be posted up?—Yes, I think it would be desirable.

6828. You say you have in your own district three separate codes for coal-mining?—Yes.

6829. I think you have already said that you think those three codes might very well be reduced to two—one for fiery mines and another for non-fiery mines?—Yes.

6830. I suppose you would also agree that a good many of the special rules, probably in vogue all through the country in the same form of words, or in a similar form of words, might very well be made general rules, and incorporated into an Act of Parliament?—I think so, and thus shorten the special rules as much as possible.

6831. With regard to investigation into mine accidents, you know the Secretary of State has power, under Section 45, to order a special investigation if he thinks fit, but that nobody can compel him to do so?—Yes.

6832. Do you think there ought to be any sort of appeal from the Home Secretary in such a case as that? Supposing the men are of opinion that the facts have not been properly brought out at the coroner's inquest, or that some new facts have come to light which necessitate a new inquiry, or anything of that

Digitized by Google

sort, and the Secretary of State does not take that view, but refuses to order a second inquiry, do you think there should be any appeal from his judgment in a matter of that kind?—I have never had any fault to find with the working of the coroner's jury.

6833. Then, in your opinion, in every case the matter has been fairly considered by the coroner's jury?—Yes, very well thrashed out, as a rule—practically always.

6834. You have never known an instance in which, in your judgment, a second investigation was necessary?—I do not think I ever have.

6835. With regard to rescue work, have you any rescue station in Durham?—No, we have none at present. One large company has been considering the matter, but it has gone no further.

6836. Do you think it is desirable that there should be a rescue station in every district?—Yes, I think it is. The present apparatus in use is not particularly satisfactory; they would want improving upon very considerably.

6837. Do you mean the breathing apparatus?—Yes.

6838. You do not think they are good?—I do not think a man would be able to do any hard physical work for any length of time with them. It might be useful for a rush, to mend a brattice or air cloth, or possibly to make a rush for a man or two.

6839. Have you had any personal experience of pneumataphors?—No, practically none, but I have been to see them.

6840. Then, in your opinion, none of the pneumataphors that you have seen would be practically of any great use for hard work under ground?—No.

6841. With regard to ambulance, do you think the system of ambulances which is in vogue in your district is sufficient?—I have gone into it during the last three or four years very fully, and we have got up an ambulance league there, and have induced the men to join. They compete every year for a challenge shield, and the first three teams get medals, the first gold, the second silver, and the third bronze; and last year we had about 1,800 join. I am speaking from memory only. I think there were 76 or 78 classes held, and about 1,800 candidates trained.

6842. You say that your second annual competition proved very satisfactory?—Yes.

6843. Then you consider that as regards ambulances the matter is going on very well?—Yes; it has been of very great use. Even so far as it has gone now there have been several lives saved.

6844. I suppose you consider that in the ordinary course of things ambulance classes will become more and more popular, and more and more men will wish to join in those competitions?—I think so. The officials are all being asked to join, and it is a very important thing that they should; they are always more or less about the mine in places where accidents are likely to happen, and to have skilled aid at once is of very great use indeed. The matter is being taken up in other districts at the present time, I know. We have considerably over 3,000 men—in fact, 3,500—now working with ambulance certificates.

6845. The men take an interest in the work themselves, and they like it?—Yes; they get up competitions amongst themselves once they have got started.

6846. I suppose you find the management are perfectly willing to encourage that kind of thing?—Oh, yes.

6847. With regard to the miners' disease, ankylostomiasis, have you heard anything of it in your district?—No, never.

6848. Therefore, I suppose, you do not suggest that any precautions need be taken?—I do not think so. The matter was gone into some few years ago, and no sign of the disease has appeared. I have made inquiries from the medical staff.

6849. Are there sanitary conveniences in your mines which the men make use of at all?—No.

6850. Of course, if the disease should make its appearance it would be very necessary that such conveniences should be provided?—Quite so.

6851. With regard to the system of examinations, are you satisfied with the working of the Examination Board in your district?—Yes.

Mr. R. D. Bain.

15 Nov. 1906

6852. Do you think it is desirable that there should be eleven different examinations all over the country for certificates?—I think the number is twelve.

6853. It is eleven, I think, because the two South Wales districts are amalgamated?—I beg your pardon. I believe the object was that if a man wanted to get his certificate quickly, if he had an appointment waiting for him on condition of his obtaining a certificate, he should not have to wait any length of time, and he could go to one of the other districts and obtain his certificate if there was not any examination in his own district.

6854. But my point is rather this: is it desirable that there should be eleven different examinations with different questions and different systems of marking papers? In some districts, I am told, the marking of papers is very different from the marking in other districts, and in some districts they allow a man to get a certain number of marks anyhow, by his answering any questions, whereas in other districts they insist upon his qualifying in every subject. That is a great difference; and also the examination papers are different in different districts. Do you think that is right?—I think the general examination should be uniform throughout the country. The *viva voce* examination should be local and separate.

6855. You think that the examination papers should be sent down for each district from a head office?—Yes.

6856. I do not know whether you would desire that there should be a central board of examiners which should go round to each district, and which should be composed of the same persons, who should examine in every case, or whether you would suggest having local boards of examiners, subject to their having the same papers in all districts?—I should think local boards would be best.

6857. You would have the same papers, but different examiners?—Yes, on account of the *viva voce* examination for the technicalities of each district.

6858. Of course you might have a *viva voce* examination tacked on to the other examination, and conducted by different people. It does not follow that, because you have a Central Board of Examiners to go all round the country and to hold these examinations, you should not have another set of persons to conduct local examinations *viva voce*?—Quite so.

6859. So that it would not matter to you very much whether the same persons were sent all round the country to conduct the examinations, so long as they confined their attention to the written examinations, or whether the local people were allowed to conduct the examinations?—That is so.

6860. But what you think is that in each district the local examiners should have power to supplement the written examination by any *viva voce* examination they thought fit?—Yes, I think that is desirable.

6861. You have some metalliferous mines in your district?—Very few.

6862. Have you considered the question whether it would be desirable for managers of metalliferous mines to obtain certificates?—I have not; we have so few mines that would be affected.

6863. Perhaps it has not occurred to you to think about that. Do you know enough about metalliferous mines to be able to give an opinion as to whether it is more difficult to obtain proper supervision over them than it is in regard to coal mines?—The discipline is not so strict in the metalliferous mines as it is in the coal mines at the present time.

6864. You think the state of the discipline leaves a good deal to be desired?—Yes.

6865. It might be made better?—I think it might.

6866. Do you think that the discipline is in any way impaired by managers of metalliferous mines being, perhaps, sometimes more or less ignorant of subjects which they ought to know?—They are usually good practical men. They are not very highly skilled men from a technical point of view, perhaps.

6867. But you have no reason to think that the managers of metalliferous mines are not equal to their work?—I have not.

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906

6868. Supposing that certificates for managers of metalliferous mines were required, do you think it would be necessary to classify the mines, or might you do as you do in the case of coalmines, and have one class of examination for everybody?—I should think one class for everybody would be sufficient.

6869. With regard to experience in practical mining before persons are allowed to sit for certificates, do you think that experience in foreign or colonial mines ought to be counted?—I think it might.

6870. Then if that is done I suppose you would say that there ought to be some means of finding out whether a man really has properly served underground in a foreign or colonial mine. It would be more difficult to test that matter in regard to foreign or colonial mines than it would be in regard to English mines, but, subject to that, would you see no reason why experience in foreign or colonial mines of a fairly similar character to those in England should not be taken?—No, so long as it is properly authenticated that the man has been there and done his duty.

6871. It has been suggested that one might admit colonial certificates?—I have no experience of that. I do not know what the Colonial examinations are like at all.

6872. With regard to working plans in your district, are you satisfied that they are accurate?—The modern plans, I believe, are. Some of the old ones I should be doubtful about.

6873. Do you try at all, in the course of your underground inspections, to verify any plan which you have seen in a colliery; do you try and discover for yourself whether it is accurate or not?—No.

6874. You have no means of doing so?—We have no means of doing so.

6875. Supposing there was any question raised as to the accuracy of a plan, what would you do; supposisg the men were to come to you and say that they doubted the accuracy of the plan, or for some reason you had any cause to imagine that the plan was inaccurate, are there any steps which you could take in the matter?—An independent survey might be made if that portion of the pit was accessible; but it might be filled up, and impossible to reach.

6876. Supposing it were accessible, what would you do; would you apply to the Home Office and say that you had heard that those plans were not accurate, and would you suggest that a survey ought to be made, or would you go to the management and ask them to make a survey, or to verify that survey?—I should go to the management first, I think.

6877. You would go to the management and ask them to send a man down to verify that plan?—Yes, I probably should.

6878. You have never had to do that?—I have not.

6879. The provision with regard to this is Sub-section 3 of Section 34: "If the owner, agent or manager of any mine fails to keep, or wilfully refuses to produce or allow to be examined, the plan and section aforesaid, or wilfully witholds any portion thereof, or wilfully refuses, on request, to mark thereon the state of the workings of the mine, or conceals any part of those workings, or produces an imperfect or inaccurate plan or section, he shall (unless he shows that he was ignorant of the concealment, imperfection or inaccuracy) be guilty of an offence against this Act; and further, the inspector may by notice in writing (whether a penalty for the offence has or has not been inflicted) require the owner, agent or manager to cause an accurate plan and section, showing the particulars hereinbefore required, to be made within a reasonable time at the expense of the owner of the mine." Then Sub-section 4 provides that if he fails to comply within 20 days he shall be guilty of an offence against the Act?—Yes.

6880. (*Mr. F. L. Davis.*) Who would ever suggest to you that the plan was inaccurate. It could only be guesswork, could it not?

6881. (*Chairman.*) I suppose it might come about somewhat in this way: men might be working in a neighbouring mine which was supposed to be 100 yards off, and they might hear sounds of working in the mine when they knew they ought to be a considerable distance away, and that would arouse the men's suspicions. In any case you might have knowledge of it?—It would be distinctly a case for a survey. In that case both sides would have to be open and accessible.

6882. But you have never, in point of fact, put this sub-section in force against an owner or manager?—I have not.

6883. You have never suggested to an owner that his plans were probably inaccurate, or might be inaccurate, and requested him to verify them, or to make others?—No. I have had some cases of very small places in which there were simply pencil sketches, and I have required proper plans to be made.

6884. (*Mr. Wm. Abraham.*) Do you consider that it is any part of your duty to make inquiries as to the accuracy of a plan?—I have very often done so. In cases where they are driving against water, or where there is any fear of accumulation of water lying against a colliery, I have very often drawn managers' attention to the question whether they are certain about the accuracy of their plans.

6885. (*Chairman.*) What did they say?—As a rule they are pretty well satisfied that the plans are accurate, or have taken steps to verify them.

6886. Have you ever induced owners or managers to verify their plans?—Yes, and they have had independent surveys made.

6887. Have those surveys generally shown that the plans were accurate?—That they were reasonably accurate, I believe.

6888. Do you think it would be a good thing if there were some statutory obligation put upon the owner or manager to produce a plan of his colliery that was vouched for by some qualified person such as a surveyor. At present, as I understand, the manager of a mine may put forward any plan that he pleases, and there is no means of anybody who sees that plan knowing whether it has been made by a competent person or not?—He is bound under the Act to keep an accurate plan.

6889. Yes, but he may say it is an accurate plan. It appears to me that perhaps it might be desirable, with a view of ensuring that the plan was accurate, that the plan should be vouched for by some man who had a reputation to consider—such as a man who had passed some surveyor's examination, or something of that kind?—Large firms usually keep qualified surveyors—skilled surveyors.

6890. Yes, I have no doubt most of the plans are accurate and are made by qualified men?—There would be no objection at all to the surveyors attaching their signatures to them; that would be very useful in case one wanted to trace them afterwards.

6891. The suggestion is that no plan should be passed by the Secretary of State as being an accurate plan of a colliery unless it was certified by some man who was an expert in the matter?—A qualified surveyor.

6892. You would say a qualified surveyor?—Yes, I think that would be desirable.

6893. You think that might be insisted upon?—I do.

6894. Have you had any difficulty with regard to under-sea workings?—There are two collieries in my district working under sea a considerable distance, one more than a mile.

6895. Have you any suggestion to make as to the working of a under-sea colliery?—No. We take no special precautions in the case of these collieries; but I may say the depth is very great.

6896. So that there is no question of the sea coming in?—No. The minimum thickness of the strata overlying the seams worked is 1,574 ft. in one case and 1,614 ft. in the other.

6897. So that so far as your experience goes, there is no difficulty with regard to under-sea workings in your District?—No, we have not found any.

6898-9. You have paid no special attention, I suppose, to the question of under-sea workings, and how they should be safeguarded?—It was gone into four or five years ago; I am not quite sure about the date. A report was got out then for the New South Wales Government, and it went into the matter.

6900. Would you like to say anything to the Commission on the subject. Have you formed any opinions with regard to any rules which might be incorporated

Digitized by Google

in an Act of Parliament as to under-sea workings?—I do not think there is any necessity in those cases in Durham, the thickness of the strata is so great. It might be desirable where the strata thins very much between the ocean bottom and the coal.

6901. With regard to the number of inspections which the men are entitled to make under General Rule 38—a point already referred to this morning—I am informed that a question was put by Mr. Wilson, the member for Durham, in the House of Commons in June, 1893, to the then Home Secretary. Mr. Asquith said that if there has already been one such inspection in any month there is no legal right to insist upon another until the month has expired. I cannot read that section in that way myself?—I think that is the way in which we have looked at it.

6902. The words do not seem to me to bear that construction. The words are "once at least in every month"?—Yes.

6903. Surely that means that the men may go down oftener if they wish. That seems to be a sort of general instruction to them to go down at least once a month, but oftener if they desire?—I do not think it has been treated so in practice.

6904. (*Mr. Wm. Abraham.*) It is not so in practice. Of course, as Mr. Davis pointed out, the men when they do inspect must be accompanied by some officials, and it is right that it should be so?—Certainly.

6905. (*Chairman.*) I see Mr. Wilson on the occasion to which I have referred went on to take the same point as I take, because he said "The Rule says 'at least once a month.' Does that imply that they cannot inspect a mine more than once a month?" Mr. Asquith said "I am advised that the rule does not give the man any legal right to inspect the mine oftener than once a month"?—Yes, that is how it has been understood.

6906. (*Sir Lindsay Wood.*) I think you consider that the system in your district of partly fining and partly prosecuting is sufficient to maintain discipline?—Yes.

6907. You have not found that serious accidents were passed over by the infliction of small fines?—No; the more serious offences are dealt with before the magistrate, as a rule.

6908. With regard to General Rule 4, you said you recommended that there should be two examinations in each shift?—Yes.

6909. Do you mean two in addition to the examination previous to the men going in?—Yes, two during the shift.

6910. That would be three altogether; there is to be an examination before the men go in and two examinations after?—Yes. Under the present rule the places have to be examined only once during the shift. I should like to see the number of examinations increased to two. It is already done in some mines.

6911. The working hours are not much more than five or five and a half?—I believe that is so.

6912. Then you would recommend that there should be practically an examination every two hours?—Well, the length of shifts vary. I would not limit it.

6913. Of course, they vary between five and five and a half hours?—Yes, I certainly think that two examinations would be desirable.

6914. My question was whether you would be content with the examination before the men go in, which examination is made within a certain time of the men going into place?—Within two hours.

6915. Within two hours, or just as the men go into the place: I ask you whether you would then require three examinations—one just before and two after they are in?—Yes. A man might be going into the last place that the deputy had only been out of perhaps half an hour; if he commenced his second examination there again that place would be seen twice in a very short time, and it would be far better that he should return again before the end of the shift and make a further examination.

6916. My point was that the hours which the men are actually working in the face would be between five and five and a half hours?—Yes.

6917. During that time they have to have one inspection before they go in, and you consider that they should have two after they are in?—I think it would be desirable.

6918. It would mean an inspection practically almost every two hours?—It would be a safeguard so far as the timbering goes. If the deputy had been in a man's place early in the shift and the man was pretty well certain that he was not coming back, he would be rather inclined to run the risk, if he was that sort of man, of not putting in sufficient timber; whereas, if he expected the deputy to come back, he would be more careful.

6919. You said you had had very few explosions lately in your district?—That is so.

6920. Is that due to the fact of the mines not being dry and dusty, or to any other cause?—It is principally due to good supervision and discipline, I think. Some of the mines are dusty.

6921. Do you consider there is any practical danger in a dusty mine if there is no shot-firing—that is to say, assuming, of course, that General Rule 1 is carried out, and that there is no gas?—So long as there is no gas and no shot-firing, there would not be danger from dust.

6922. If there is no question of danger, would watering be required?—It would be desirable even then to water the haulage roads for the sake of the sanitary condition and for the comfort of the people travelling and breathing there.

6923. Yes, if the dust was excessive, but if there was not much dust it would not be necessary, would it?—If it was a really dry and dusty road it would make it much pleasanter to have it watered even apart from the fear of explosions of gas or from the use of explosives.

6924 Would you consider it necessary to water the travelling roads independently of the main roads?—It would make them far pleasanter, quite apart from the question of safety.

6925. I mean apart from safety; I understand the idea is that the travelling roads should not be watered as well as the main haulage roads so far as safety is concerned?—No, it would be for the sake of the health of the men, not so far as safety goes—unless, of course, there was any shot-firing required on the travelling roads.

6926. I suppose you have not estimated in any way what amount of expenditure would be required in a large colliery to take water-pipes over all the haulage roads into the face?—No, I have not.

6927. It would be very large, I presume?—It would, no doubt. But there are other systems of watering, by tubs and sprays.

6928. Is that method effective?—Yes, I believe it is working very well.

6929. Not with regard to the tops?—Yes, it covers the roofs and sides as well. I saw one at work a little while ago, and it appeared to me to work very well.

6930. Do you think that system would be sufficient to lay the dust and sufficient to prevent explosions of dust?—Yes, it appeared so; when I saw it, it seemed to be working very well indeed.

6931. Is it the general practice for the men to be withdrawn from mines in your district when a cap is found on a lamp?—Yes, it is the general practice.

6932. Is it the invariable practice, or generally so?—It is certainly the general practice.

6933. Is a cap which is shown upon an ordinary oil lamp—not a spirit lamp—a sufficient test, do you think?—In the face I think it is. It is practically the only test that the man has.

6934. The only present test?—Yes. I think it is sufficient.

6935. A cap would be shown previous to the mixture becoming explosive?—Yes, you see the cap before the mixture is explosive.

6936. I mean the mixture is not so explosive as to explode before you see a cap?—No, unless it be in the case of a very sudden outburst; but in an ordinary case in a mine you would see the cap before the air was explosive.

6937. With regard to the testing of types of lamps, I think you say that it would be a good thing to have

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906.

that done in the same way as explosives are tested?—Yes.

6938. By some authority, such as the Home Office?—Quite so.

6939. Not by the owners of collieries?—No, I meant by the Home Office, or some such authority.

6940. With reference to accidents on haulage roads, do you find that many of those are occasioned by men riding on tubs?—Yes.

6941. Are they breaking the rules when they are doing that?—Yes; it is prohibited.

6942. It is prohibited by the rule, and yet many accidents happen by their doing so?—That is so. In some cases the men are allowed to ride on certain sets in the day in and out from work; but apart from those sets riding on the tubs is prohibited.

6943. Those sets are specially set apart for the men for travelling?—Yes.

6944. In the travelling roads are there any cases where there is less than 2 ft. space between the rails and the side?—There would not be 2 ft. between the timbers and the tubs in many cases, I should think.

6945. You said you thought it would be advisable in regard to the alteration of Special Rules that workmen should be consulted before the rules are posted? Yes. I believe the arrangement has already been made more or less, when the question of revising the Special Rules a year or so ago was brought up; I think the men were invited to come and meet the Owners' Association.

6946. Previous to the rules being posted?—Yes, for the purpose of discussing the alterations.

6947. But I thought the owners made the rules or proposed alterations to the rules and then posted them, and then asked for an interview?—You may be right.

6948. I should have thought it would have been better to have posted the proposed alterations to the rules, and then to have discussed them rather than to have a discussion previous to posting them? Do you think it would make any difference?—No, so long as the men are consulted at some time or other; I think it is only right that they should be consulted before the rules are finally established.

6949-50. At a conference?—Yes.

6951. You said that one colliery was contemplating the provision of a rescue station and that they have abandoned it?—Not abandoned it. It is still under consideration, I believe.

6952-3. I thought that very likely delay had been caused by a desire to have the report of this Commission previous to adopting any suggestion as to a station?—I do not know if that is the reason; but I know it was proposed to send someone to visit the Tankersley Rescue station in Yorkshire.

6954. With respect to the accuracy of plans, you have said there are some plans which are inaccurate. Are those plans which have been made within the last 10 or 15 years?—No; I said I think the older plans are sometimes inaccurate. The modern plans are accurate.

6955. You referred to ancient plans?—Ancient plans sometimes are not accurate.

6956. Do you say that present plans are accurate?—Yes, I think they are.

6957. And they are made by qualified men?—Yes.

6958. (*Mr. Wm. Abraham.*) Did I understand you to say that you considered the inspection in your district made by yourself and your two assistants was a sufficient inspection?—When we all three were in full work we got through the district all right.

6959. What do you consider "getting through the district"?—The Secretary of State wished every pit to be inspected underground at least once in a year, and we were able to do that and to investigate accidents and complaints.

6960. Then in your opinion if you or your assistants visit every colliery district once in a year, you consider that an efficient inspection?—In some of the small mines. The larger ones are seen much more often than that.

6961. But your answer was "once a year." What do you consider efficient inspection; what does it mean in practice?—A general examination of some portion of the colliery—you would not go through the whole of it, very likely.

6962. A general examination of some portion of it?—Yes. I do not mean that in a large colliery you would go through every working place; it would be impossible with the existing staff.

6963. Then do you mean, taking a large colliery, that an examination of a portion of that colliery once a year is an efficient examination?—Probably large collieries would be seen a good deal more than once a year; but to examine every working place in a large colliery would be absolutely impossible with the present staff of inspectors.

6964. But what is your standard, and by what standard do you gauge the safety of a colliery when you have only examined a portion of it once a year?—I did not say once a year. I said the large collieries would be seen more often than once a year; unless there happened to be an accident you probably would not go into the same district a second time unless you went for some special purpose, or unless you thought there was something wrong. If you considered there was a district which was not well ventilated, or in which there was something else wrong, you would return there; otherwise you would go to another one.

6965. Then in consequence of having to visit some collieries more frequently than once a year, there would be some collieries not visited at all?—For two or three years I think we got through them all.

6966. That is to say, you have been once in a twelvemonth in all the collieries in your district during the last two or three years?—Not I personally, but some of us.

6967. I do not mean you personally?—Yes, that was so up to last year. I believe two or three were left out last year—that is all.

6968. By what standard do you gauge the safety of a colliery, by examining only one part of it?—Well, if you found one district of a pit was well ventilated, well timbered and generally in good condition, it would be a reasonably fair conclusion to draw that the rest of the mine would be equally well managed.

6969. Have you now in your mind the case of a colliery which is so separated that it has two or three divisions called mines?—You mean different seams in one colliery.

6970. Yes?—In that case we should probably try to get through each seam if possible, treating it as three separate mines.

6971. That would require you to go three or four times?—Yes.

6972. Then, having to do all that, do you think now that the inspection in the district is sufficient?—It takes us all our time to do it properly.

6973. Then let me put this question: would it not in your mind be a desirable thing if you had a staff under you of, whatever number it might be—2, 3 or 4—practical men not requiring the high standard of technical knowledge and so forth which is required by your assistants and yourself, whom you might send here and there occasionally? Do you think that would be an improvement on the present system of mines inspection?—The present system of examining at the collieries themselves rather meets that; the officials who make the examinations are all skilled practical men. I take it you are suggesting something of that sort—inspection by practical men.

6974-9. No, I am suggesting Government inspection—a new class of inspector, of course under the supervision of the chief inspector and at his orders. On our side we do not suggest that a man should be appointed without being able to pass an examination. I think our object would be met even if the appointments were confined to men who were able to obtain a certificate of competency; but we suggest a new class of men, a more numerous class of men, and men who would not require to possess a large amount of scientific knowledge, but who by their practical knowledge would know how to examine a mine?—If you multiply inspection very much, you rather take the responsibility from the colliery owners and managers.

6980. Would that be your objection?—I think it would be an objection.

Digitized by Google

6981. Does not the examination by the workmen have the same tendency?—No.

6982. Why not?—They examine for the management. It is the official examinations that I was alluding to, apart from the workmen's examination.

6983. Of what service, then, is bringing the report of the examination made by workmen before coroners' inquiries?—They make a report as soon as ever they have seen the site of the accident before they leave the pit—they see the thing *in situ*.

6984. I did not refer to an examination after an accident, but to the monthly examination. As you know, these reports were brought forward by the managers of collieries at coroners' inquests?—Yes.

6985. Was there not great reliance placed upon them there?—I daresay; it would show the condition of the mine at the time the report was made.

6986. Would not that have the same tendency of relieving the management from its responsibility, as you suggest in the case of too much examination by inspectors?—No, it would not relieve them from responsibility; it would simply show that up to that time, when the examination was made things were in a proper condition, or whatever condition the report stated them to be in.

6987. Very well; a more frequent examination by competent men would mean the same thing as if they were appointed by the Government?—If there was a large staff of Government inspectors very constantly in the pits, distinctly there would be a tendency, in my opinion, for the management to say, "The inspector has been through here and the place is all right," and that might relax the discipline in places.

6988. How often do you personally visit these collieries?—Do you mean underground?

6989. Yes?—I think last year I was down about 73 times. I do not know how many times the year before.

6990. Do you visit the offices occasionally when you are not going underground?—Yes; I am somewhere in the district every day in connection with the mines.

6991. Take an average colliery: how many times a year would you visit it?—I can hardly tell you. It depends upon what matters you have to discuss with the management. I have no fixed time; it would be impossible; you have to go just where your work takes you at the moment for the day or the week.

6992. Then how do you supervise the list of fines?—I only look at them occasionally. I did look at them on the occasions that I spoke of to see whether they were reasonable or not.

6993. That was a point of interest to you, whether those fines were reasonable or not?—We had instructions to that effect.

6994. In your opinion which would be the most effective deterrent to breaches of rules—prosecution or fine?—I do not know that there is very much difference. Both are punishment; one is a lighter one than the other.

6995-7. In your opinion there is not much difference in the effect of fining as compared with prosecuting, as regards its being an effective deterrent against men committing breaches of rules?—In one way prosecutions are more effective; prosecution makes the matter more public; it gets into the newspapers, and not only the colliery where the offence has been committed knows about it but the other collieries know of it also. For that reason it is certainly desirable in some cases, where the offence is a bad one, to prosecute, not so much to punish the man as to warn other people.

6998. The man himself would rather be fined than taken to court?—That is so in most cases.

6999. Have you any doubt in your mind now as to whether taking him to court or fining him is a greater deterrent against his breaking rules?—The individual concerned, probably, will not do it again whether he has been taken to court or whether he has been fined. The point is publicity.

7000. Of course, the mining industry is made up of individuals, and if you can cure the individual you can cure the whole population, can you not?—Well, you can cure some.

7001. I think you said you have had some occasion to recommend the reducing of the size of the districts which are examined by firemen?—Yes; I think I have two cases in my mind.

7002. Do you find, as a rule, in your district, that the districts to be examined by firemen are rather larger than they should be?—I do not think they are—certainly not as a rule.

7003. Do you consider it necessary that some power should be given to the inspectors to see that the districts are made of such a size that the firemen can carry out their work?—I have not found it necessary. In both those cases in which I went to the management they made an alteration. If there were such cases we should hear of [illegible] almost directly through the miner's agents. They would tell us, even if the firemen did not themselves tell us.

7004. What hours per day do the firemen work in your district?—The general rule is that the fore shift fireman go down at 3 o'clock in the morning, and arrives back at 10.30.

7005. How many hours would that shift be?—7½ hours—from 3 to 10.30. The back shift fireman goes down at 9.30 and rides at 5; that is also 7½ hours.

7006. With regard to timbering we understand that in your district there is a system of timbering by deputies?—Yes.

7007. Will you kindly describe that system to us briefly?—Perhaps I might read you the rule bearing upon it: "Each deputy shall be responsible for having ready and putting into or near to every working place under his charge a sufficient quantity of suitable timber, brattice, sprags, and other materials; and (except as provided in Rule 103) for setting sufficient timber to afford the greatest possible safety to the workmen employed; and he shall report any deficiency of timber, brattice, sprags, or other materials to the overman or back overman." In that case he is responsible for the timbering of the working places, subject to a rule for the workman which reads as follows; "Should the working place of any man or boy become unsafe from any cause he shall discontinue working in it, and immediately send or go for the deputy; but if unsafe from want of timber being set then in the absence of the deputy, there being sufficient timber of proper lengths in or near to the place, he shall set it in order to keep himself safe, or shall cease to work or retire therefrom and report the same to the deputy or other official, and in all cases where necessary he shall sprag his jud."

7007.* Notwithstanding the fact that that deputy is responsible for providing timber and for putting it up, and so forth, the workman after all is the real man who is responsible for the safety of his place?—That must be so of necessity. Circumstances vary. Every time he gets a lift of coal off, the roof might want re-timbering, and so forth.

7008. (*Mr. Enoch Edwards.*) I think this point requires clearing up. Where does this rule make it obligatory on the part of the deputy to set the timber?—In the passage I have quoted: "Each deputy shall be responsible for having ready and putting into or near to every working place under his charge a sufficient quantity of suitable timber," and so on; and "for setting sufficient timber to afford the greatest possible safety to the workman employed."

7009. But that is in the workmen's rule?—No, that is the deputy's rule. The back-overman has to see that the timber is taken into the districts, and also the overman—they are responsible for that.

7010. (*Dr. Haldane.*) Is the number of accidents from falls of roof low in your district under this rule?—The average death rate from falls of ground at the working face is 0·45 for Durham District, as against South Wales 0·5.

7011. There is very little in it?—That is so.

7012. (*Mr. Wm. Abraham.*) Is not the responsibility a divided responsibility between the deputy and the workmen?—I do not find that the system works with any difficulty in my district.

7013. That is not quite an answer to my question.

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906.

Is it not a divided responsibility—the deputy is responsible some part of the day?—The deputy is responsible excepting that in his absence the hewer is responsible.

7014. How long would he be present in the working place?—I could not say. It would depend upon what he had got to do. He would set perhaps three or four pieces of timber, and he would probably give instructions, if he thought it necessary, as to what the hewer was to do in his absence, after some more coal had been taken down.

7015. When would the deputy begin setting the timber?—As soon as he had met the men he would return with them to the working face.

7016. In the morning, at the beginning of the shift?—Yes.

7017. Are there sufficient deputies to go with every miner to his working place?—A deputy would take charge of perhaps ten or a dozen or fifteen working places. I believe the rough average is somewhere about twelve.

7018. It comes to this, that after all we have heard about this system of timbering by deputy, the real responsibility falls upon the workman himself, does it not?—He is responsible in the absence of the deputy either to set the timber or to come out and send for the deputy.

7019. The real responsibility is on him, after all?—The responsibility is on the deputy in the first instance.

7020. Yes, but if the deputy is there only one-sixth of the time that the other man is there, how can he be responsible?—The duty of the hewer, if the place becomes unsafe, is to come out; but if it is only unsafe for want of timber he can set it or else he has to leave. It is not compulsory upon him to set his own timber even in that case.

7021. But does not that prove what I say—that the real responsibility of timbering is with the collier, after all?—No, it is with the deputy, too.

7022. How is that possible when he is only there one-sixth, say, of the time that the other man is there?—That is so. Every time a man pulls down some coal the probabilities are he would have to put some more timber up. He could not send for the deputy every time he did that; he would never get his coal out.

7023. Then, in order to be safe, that coal hewer needs to be a timberer as well?—Yes.

7024. Under your deputy system you could not allow an unpractical man to go there at all?—No, it is not allowed under the Act. No man who has not had experience for two years in the face is allowed to work alone.

7025. But, no doubt, you know of hundreds of men who have had experience for two years in the face who could not put up timber—of course, I am speaking with regard to other districts besides Durham?—The probability is that the officials would very soon find that out. If a man was not capable of setting his own timber they would not let him work there alone. It would be quite apparent to the officials, as they went round, if a man was not capable of doing that.

7026. I think that is sufficient for me, that after all under that system the responsibility of timbering places is divided between the deputy and the working collier; and the working collier, being there so much longer time than the deputy, becomes the principal man responsible for the safety of his place. Is not that so in practice?—The Rule says "he shall set it, in order to keep himself safe, or shall cease to work and retire therefrom, and report the same to the deputy or other official." That is the duty of the collier.

7027. But, of course, he must be able to do that duty, or else he could not do the work?—Yes.

7028. (*Dr. Haldane.*) He must be able to judge whether it is safe or not?—Yes.

7029. (*Mr. Wm. Abraham.*) So that the responsibility does rest upon him in that case to that extent?—Yes, of necessity it does.

7030. Suppose that when you have seen a manager with regard to the maximum distance between timbers he refuses to adopt your recommendation, what power have you to compel him to do so?—None, without going to arbitration. We can go to arbitration.

7031. (*Chairman.*) You mean if the manager refuses to take your advice as to what ought to be the maximum distance?—That is what Mr. Abraham means, I understand.

7032. (*Mr. Wm. Abraham.*) Notwithstanding the fact that working according to his maximum distance would be endangering the lives of the men working, you would have no power to enforce your recommendation except through arbitration?—That is so.

7033. Have you always been in agreement with the verdicts at coroners' inquests?—Yes, I have no recollection of any case in my experience where it has not been according to the facts.

7034. Referring to General Rule 1, do you agree that it is right, or would you condemn it if you knew of it, that the fan should be slackened down at any time in a fiery, dry, and dusty mine?—I do not think it would do any harm provided that full speed were resumed in sufficient time to secure that the ventilation was absolutely efficient before the workmen went in again. I do not see any objection to slacking down at the week-ends.

7035. Supposing in a certain district of the mine you knew that a cap was found in the ventilating current where the men were working two or three times in six months, would you agree that it would be safe to reduce the speed of the fan at any time?—All gas should be removed before the men went back to work after the cap was found. Sometimes not only the fan has to be reduced, but it has to be stopped for repairs and alterations to engines, and so on.

7036. When the fan needs to be repaired it needs to be stopped, and the sooner the better?—Certainly. When the first examination was made, if gas was found, the men should not be allowed to go to work.

7037. How do you interpret the rule?—An adequate amount of ventilation should be constantly produced. It certainly should be so before the men are allowed to enter. The ventilation should be perfect before the men are allowed to enter.

(*Mr. Wm. Abraham.*) "An adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases."

7038. (*Mr. Ratcliffe Ellis.*) Read to the end of the sentence: "to such an extent that the working places of the shafts, levels, stables, and workings of the mine, and the travelling roads to and from those working places, shall be in a fit state for working and passing therein." He says if it is put right before the men go down, then the General Rule is complied with.

7039. (*Mr. Wm. Abraham.*) The examination is to be made within two hours?—Yes.

7040. Where a cap has been frequently found, is it not possible for the cap to appear within the two hours?—It might be possible under certain conditions.

7041. Then it would be unsafe to have the fan stopped?—The fan would not be stopped when the men were going down the pit after the examination, or between the examination and the men going in.

7042. Is it not possible by the stopping of a fan to prevent the gas being cleared within that time?—If there was not sufficient time to clear the gas before the men went in, they should not be allowed to go to work there until the working places are absolutely clear.

7043. There is a point I wish to mention here which I think we have not dealt with and which comes within our province. Section 16, Sub-section (i) (c) reads: "Proper apparatus for raising and lowering persons at each such shaft or outlet shall be kept on the works belonging to the mine; and such apparatus, if not in actual use at the shafts or outlets, shall be constantly available for use." Have you noticed in some cases where accidents have happened that you have had to erect some temporary means of bringing up the men, because this apparatus was not effective or prepared?—I have known them damaged by an accident, and temporary arrangements have had to be made then.

7044. Was this Rule carried out then?—Yes, apart from the accident happening. The apparatus was there, but it was destroyed or damaged by an accident—by an explosion.

Digitized by Google

7045. Do you remember an accident that happened not long ago in Northumberland, where they had to erect some temporary means of bringing up some men, and it took them several hours to bring them up in a most dangerous way?—Northumberland is not in my district, and I do not remember the case.

7046. That is not in your district?—No; that is in Mr. J. B. Atkinson's district.

7047. You do not know of your own experience of cases in which this provision is not observed?—No; I do not think I do.

7048. (*Mr. Enoch Edwards*). At the opening of your evidence before this Commission you told us you had two assistants?—Yes.

7049. I think you said one of them left you owing to retirement?—Yes.

7050. And the other was transferred to another district and promoted?—Yes.

7051-2. That did not happen at the same time?—No; I was never left entirely without an assistant.

7053. I think you said that you had no one in his place for four months?—It is nearly four months now. I think it will be on the 21st of this month.

7054. Is it usual that here should be vacancies for that length of time?—I really cannot say; I believe a gentleman has been appointed now, and he is waiting for formalities only.

7055. So that, so far as you know, there is no arrangement to fill up those vacancies as they occur?—No.

7056. Not immediately?—I think the candidates have to come up for examination. There would be delay in that very possibly.

7057. In your case it takes four months?—I believe it was the 21st July, if I remember rightly, that Mr. Johnstone left.

7058-9. During that period you were not able to give the same attention to the district, nor pay the same visits?—No.

7060. You do not know why such a length of time elapsed?—I do not.

7061-4. Does it not rather suggest that one or two additional inspectors in large districts could be employed to be moved in case of vacancies like this?—It might be done, but they are not very frequent. The changes in the staff are not very frequent. There may have been some special reason for this that I do not know of.

7065. In dealing with the question of discipline in the pit, I understood you to say men were generally prosecuted rather than fined in your district?—For serious offences.

7066. Should I be asking you too much if I asked you to tell me what you consider a serious offence and a non-serious offence?—A man tampering with his safety-lamp or endangering lives I should consider a serious offence, or that sort of thing.

7067. What is a non-serious offence?—I only ask you the question so far as it affects the rules laid down by law?—Here are some cases taken at random: Trespassing in different parts of the mine, that is, going where he was not employed. He is fined for that.

7068. Not before the court?—No, by the Colliery company. Here is another: not setting a prop when he should have done.

7069. You would regard a man going from one place to another in the working as a non-serious offence. Men do that for many reasons?—I am afraid I cannot give you the details of why they went there. There is probably some explanation.

7070. Is it not likely if that case had gone before the court they would not have fined him at all?—Without knowing the merits of the case I really could not tell you; but even so, he has no right to go about the mine to different places. It is quite right that he should be punished in some way.

7071. He has no right to do so?—He is supposed to go where he is sent and to perform the duties he is told. The other case is that of a man who has damaged his lamp and not reported it.

7072. I suppose the fireman usually is the man who reports in the office offences?—One of the officials—any of the officials.

7073. It will be an official who is in the mine; that is to say, the manager is not always in the mine?—That is so.

7074. He is not all over the mine?—That is so.

7075. Usually the reports would be made by a fireman?—A fireman or a back overman or other official.

7076. It is possible that a fireman may, for reasons other than the safety of this pit, make a report, and pull this chap in the colliery office, and get him fined?—The whole case would be gone into at the colliery office.

7077. There is not that danger before a Court where the witnesses are sworn?—They are sworn before a Court, but the whole thing would be investigated in the colliery office. It would not be taken on the one man's statement.

7078. You would not suggest a workman would get the same protection inside the colliery office as he would before the Court?—He could get legal advice before the Court which he could not get in the colliery office, but I think every case would be fairly investigated on its own merits.

7079. What is your explanation for the statement you made that discipline is better in Durham than it was in the south-west?—It is my general experience of the district. I think discipline is stronger in my district, the present district, I mean, than it was in the old one.

7080-2. Do you mean by that that the colliery officials enforce the rules upon workmen more rigidly in Durham than they do in the south-west?—I think they do.

7083. That is what you mean by discipline?—Yes.

7084. I gather that with the vacancy filled up, you have a sufficient staff to do your work in Durham?—Yes.

7085. His Lordship was good enough to ask you whether you had anything to say about the Wingate explosion, and you said, I think, that it would not have happened if the mine had been properly watered?—I do not think it would.

7086. You have said that you attach very considerable importance to the watering of mines?—Yes.

7087. You think one of the reasons why it is not done is that people do not apprehend the danger of coal dust?—They did not until, comparatively speaking, a short time ago.

7088. I think in answer to Mr. Abraham you said that you or your assistants made an underground examination of each colliery about once a year?—Yes.

7089. When had either you or your colleagues been down this Wingate Colliery?—Mr. Johnstone was down in June 13th or 15th—I forget the date.

7090-1. Five months ago?—Yes, through the road on which the explosion is believed to have originated.

7092. What means have you of knowing that collieries are being watered?—By inspection and inquiry.

7093. If you examine a colliery only once in twelve months, or once in six months, what means have you of knowing that that rule is being carried out—that the mine has been watered?—Unless this information was sent to me from any source, I should not know of my own special knowledge.

(*Chairman.*) There are regulations as to watering in connection with shot-firing. There are no special rules that the mine throughout should be kept well watered.

(*Mr. Enoch Edwards.*) There are rules which lay a serious obligation on the owner if there is an explosion at the working face when firing shots in a dusty mine.

(*Chairman.*) Independently of firing shots, Mr. Bain expressed the opinion that mines were not watered as much as he would like them to be.

(*Mr. Enoch Edwards.*) I think you will see I am trying to get from the witness what means he has of knowing, unless he inspects a colliery, that it has been watered, and he says he has no means of knowing unless they send him word.

(*Witness.*) Unless it was brought to my notice.

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906.

7094. Would the colliery people be likely to send you word?—The miners' officials very likely would.

7095. I am talking about the colliery people. Would the colliery people be likely to send you word?—The owners would not.

7096. The owners would not?—I should think not. If I asked them a question, they no doubt would reply to it.

7097. If the matter is so important as you believe it is, do you not think it is desirable that there should be an obligation on the colliery people to inform you that they had, once a week, or once a month, or at some time, watered, or carried out this rule?—Do you mean that they should send in a report periodically?

7098. Send a report to you?—It never has been done. The same thing would apply to all other clauses of the Act, and the Special Rules.

7099. I put it to you that here is a clause which inspectors and men of experience attach very great importance to, as to the question of watering the mines where you are blasting, and, unless you inspect the mine, you have no means of knowing that the mine is watered?—The same argument would apply to watering as it does to every other obligation the owners have to carry out; the examination of the timbering, and everything else.

7100. I think you understand our position here is to try and find out a remedy for the many accidents that are happening?—Certainly.

7101. It is not a question altogether as to what we are doing now, but rather a question as to what we might do and ought to do. I put it to you, how are you going to know that these conditions are being fulfilled unless you inspect the colliery?—It would be absolutely impossible to inspect the colliery before every shot was fired.

7102. Following the questions put to you, I think you agree to a suggestion made, that with a special sort of safety-lamp, a more sensitive lamp, gas should be tested in the return airways?—Yes.

7103. Of course you mentioned the return airway as being the more likely place where you would find gas. You said you would not find it in the intake?? Yes.

7104. How often would you do that?—I would leave that, in a great measure, to the discretion of the managers.

7105-6. How often would you think he ought to do it?—Say, for argument's sake, perhaps once a month; or, if it is a very fiery mine, oftener.

7107. There are changing conditions of atmosphere in a mine. Do you think that would be a safe rule to make this test once a month?—It is only an additional precaution I was suggesting. I should be pleased to give some additional help to the management. The usual examination would have to be made daily, and if any alteration was noticed, then the special examination might be made as often as desirable.

7108. We are not suggesting any additional cost to the management here. It is a matter of testing with a certain lamp in a certain condition?—A more sensitive lamp.

7109. With regard to the timbering rules, Sir Lindsay Wood put to you a question as to the number of examinations by the firemen?—Yes.

7110. You said you thought it should be twice during a shift?—Yes.

7111. To what shift does that language apply—the shift of all the pit, or of the hewers?—The hewers' shift I was thinking of.

7112. It is a continuing shift as far as the working of the colliery is concerned, in your district?—Yes.

7113. That is to say from 6 o'clock to 4 o'clock?—Yes.

7114. Colliers go in at 4 o'clock in the morning, so that it would mean from 4 o'clock to 5 o'clock, say. I want it to be clear what you mean by two inspections. We get an inspector from Lancashire who says he thinks there should be two inspections during the shift, and he would mean from 6 o'clock to 4 o'clock, or about that. I am asking you whether you mean the same thing in the north?—No. We have two shifts of hewers, and both shifts should be examined twice, in my opinion.

7115. (*Sir Lindsay Wood.*) Four times a day?—Yes.

7116. (*Mr. Enoch Edwards.*) In your opinion you think it is necessary that the firemen should make those examinations?—I think it is desirable.

7117. You were asked your opinion on the qualifications of enginemen. What is your reason for saying it is not necessary that these men should have certificates?—As far as my experience goes there has been no difficulty with the enginemen. They are an extremely good and most reliable class of men.

7118. Do you think that is a sufficient answer to a question why?—I have my doubts whether examination would be a fair test of a man's qualification altogether.

7119. That is your view—that is your reason?—Yes.

7120. It is a very important position?—Very important indeed.

7121. Do I gather the reason why you come to those conclusions is that it would be difficult under examination to prove the man's real capacity?—Efficiency.

7122. Efficiency, or his fitness?—Yes.

7123. You are more likely to prove something by an examination than without any examination at all?—The enginemen would not be put on unless they were known to be qualified men, properly trained, and if they change from one colliery to another the circumstances would be known, and the man's character is always inquired into, as to his steadiness, and so on; and his ability so far as winding goes would be apparent to the officials who have charge of him.

7124. You are aware that the engine-winders attach considerable importance to this, and have for several years promoted a Bill in the House of Commons to have a certificate of competency for enginemen and boilermen?—I believe the Enginemen's Association in Durham do issue a certificate on their own account. I have seen one, but have not got one.

7125. Your answer is that you would not be able, by examinations, to certify or fully guage whether the man was fit?—Yes.

7126. And you can only find that out by personal experience, knowledge, and observation?—Yes, and inquiry.

7127. You said, I think, that you had two collieries working coal under the sea?—Yes.

7128. In your judgment there was no ground for thinking that anything untoward would happen because men were working under the sea?—I do not think so.

7129. I gather from you the crust of earth lying between them and the sea is 1,500ft.?—1,574ft. in one case, 1,614 in another, and the seams are lined with a thick bed of limestone in addition to the coal measures.

7130. I think you said they run out a mile to the sea in one case?—Yes, in one case.

7131. How do you ascertain that thickness of crust?—By taking the depth of the shafts. The levels are taken from the shafts to the workings, and soundings are taken at sea.

7132. How often is that done?—Soundings?

7133-4. Yes?—I do not suppose it is done more than once or twice. The bottom of the sea does not vary much.

7135. Do your seams run from the shaft to the sea?—They dip seawards.

7136. I understand you to say that you had instructions from the Home Office to see that the fines imposed were reasonable?—Yes.

7137. You mean the fines in the colliery office?—Yes.

7138. Those fines are only levied for the safety of the men?—Yes, I think I was reading some just now.

7139. Were your instructions generally to inquire whether fines were reasonable?—Yes.

7140. Other than fines that are imposed for the purpose of carrying out the Act?—I am speaking now of fines for breaches of the Act and Special Rules.

7141. Were the instructions which you received confined only to the fines imposed for breaches of the Act and Rules?—Do you mean as apart from fines for filling rubbish, and so on?

Digitized by Google

7142. Yes?—The instruction was general, but whether it was specified directly I do not remember.

7143. With regard to prosecutions by employers of their workmen in court, have any of those broken down?—Yes, I believe sometimes they do. I think it will be given in my report.

7144. You do not for the moment remember?—I see here that there is one withdrawn on payment of costs, another dismissed with a caution.

7145. (*Mr. Ratcliffe Ellis.*) With reference to inspectors, do you consider that the inspections which you and your assistants, when you were fully equipped, were able to make were sufficient for seeing that the Mines Act was carried out, and that the collieries were satisfactorily worked?—I think so.

7146. Does it occur to you that excessive inspection might be prejudicial to safety rather than directed to secure it?—I do, for the reason that I explained before, that it would relieve the management of a certain amount of responsibility.

7147. It is not desirable to harass the management unnecessarily, I suppose, by inspection?—Not at all.

7148. That, again, might be prejudicial to safety?—An inspector always wishes—I do, at any rate—to have an official of the mine with him. Of course, he will be taken off his other duties when the inspector is down the pit, and so hamper the management to that extent.

7149. With reference to assistant inspectors, do you consider it might be useful to have the assistant inspector moved from place to place periodically?—No.

7150. I mean from district to district?—No, I think not.

7151. It would be an advantage to have experience in other districts?—I think it would be counterbalanced by the want of knowledge the inspector would have of the new districts which he came into. He would practically have to learn the district at every change.

7152. You do not think any useful purpose would be served by giving an assistant inspector three or four years in one place and then removing him to another district?—I do not.

7153. Is the examination the same for inspectors and assistant inspectors?—Yes, I think so.

7154. You consider it desirable, I suppose, that assistant inspectors should be qualified as highly as possible?—As highly skilled men as possible.

7155. Do you find that a man who is highly skilled is any less useful for the purpose of inspection?—Not at all.

7156. You think that it does not lessen his value for the mere purpose of inspection because he is a highly skilled man?—Not the least.

7157. As to this suggestion about practical men being appointed, do you see any advantage in appointing men less skilled for the mere purpose of inspection?—I think it would be a mistake—any reduction of the standard of the inspectorate.

7158. You have technical institutions in your district, I suppose?—Yes.

7159. Every man, whatever his class may be, has an opportunity of getting information to make him highly skilled?—Yes.

7160. If those opportunities are taken advantage of there is no reason why any man should not qualify himself for these positions, whatever his class may be?—No.

7161. You think, entirely irrespective of the class the man comes from, there ought to be no inspectors appointed for the mere purpose of inspections who are not as highly skilled as you can get them?—Yes.

7162. With reference to the information that comes to you as to how you find things out, I see in your last report, on p. 26, you say: "Twenty-nine complaints were received from various sources during the year. This is somewhat above the average. Last year the number was twenty. All of them were investigated without delay, and when anything was found defective steps were immediately taken to have the matter rectified. The great majority came through the accredited agents of the Miners' Associations, others from anonymous correspondents, some of which on being investigated were found to have no foundation whatever, and to be the outcome of some personal ill-feeling between the individual and the officials of the mine." Do you find any difficulty in getting information when there is anything requiring your attention?—No. The information very often, in the majority of cases, comes through the officials of the Miners' Association.

7163. Although you cannot yourself, by being every day at the pits, ascertain what is going on, you do not find any difficulty in getting information when anything requires your attention?—Not at all; and quite apart from these official complaints, as I may call them, one is constantly in communication and touch with the workmen's representatives, and they very often mention things.

7164. So that you find you can always have information given to you, and it is given to you, when there is anything requiring your attention?—Yes, so far as I know.

7165. With reference to the powers of inspectors, do you want any more power than you have got now?—In what particular way?

7166. In anything. Are you satisfied that you are invested with sufficient powers fairly to carry out this Act of Parliament and to secure the safety of the men?—I have not thought it over carefully. I think so. There is nothing that strikes me.

7167. There is nothing that strikes you as to which you want your power increased?—No.

7168. You do not want to become the manager of these mines?—Certainly not.

7169. You think that is very undesirable, and you would leave something to the manager to do?—Certainly.

7170. With reference to Rule 38, that is the examination by the workmen, do you receive many reports from them after the examination?—Not very many.

7171. They have to report to you if anything is wrong?—Yes.

7172. What is it that is generally wrong in the reports that you do receive?—It would be only cases, probably, of ventilation being bad, or timbering bad. Those would be the two principal things.

7173. One advantage of this inspection, I should think, would be—tell me if I am right—that it is made by people employed in the pit?—Yes.

7174. By men conversant with the conditions of working?—Yes.

7175. Am I right in assuming it is more satisfactorily made by those persons than by bringing outside persons to the place?—I think so.

7176. You think the provision at present made for it is more satisfactorily carried out by the inspection being made by men engaged at the colliery than by outsiders?—I think so.

7177. With reference to inspection after an accident, as you have mentioned, it is clearly desirable that should be made by people in the colliery on the spot?—They are on the spot, and in some cases get there within a few minutes.

7178. With reference to the discipline and the prosecutions, you can prosecute an owner—in fact, you can prosecute anybody, owner, agent or manager, or workman, if you choose?—Yes.

7179. What guides you in deciding whether you will prosecute an owner, agent, or manager for an offence committed?—If it is a serious breach of the Act I should refer the whole matter to the Home Office if I thought a prosecution desirable.

7180. Where you think a prosecution desirable I suppose it is not always because it is the personal default of the manager himself, but because you think he has not taken proper steps to carry out the regulations?—Yes; that would be personal default, would it not?

7181. As the Chairman has put it to you, if you had found that repeatedly the manager had refused to prosecute for some offence against the Act, and that act is repeated, that is a case in which you would prosecute the manager?—I do not think I have ever had a case come to my knowledge of that sort.

7182. However, that would be a case, in your view, where the manager would be in default?—If he did not, "enforce," I think the word is, the rules.

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906

7183. If he persistently refused?—He would be in default then, certainly.

7184. That is a case in which you would prosecute the manager. Managers as a rule you find capable men, I suppose?—Yes.

7185. Skilled men?—Skilled men, most of them.

7186. And competent men?—And competent men.

7187. Do you find them desirous of doing what they can to secure the safety of the men employed in the mine?—I do.

7188. With reference to fines, your view, I think, as you have mentioned already, is that you do not discourage fines altogether?—I do not.

7189. Some notice must be taken of a breach of discipline?—I think it would be impossible to prosecute in every case. The officials would have to be away from the mines two days, and possibly three, one in applying for a summons and another going to the Court; and there would be more friction among the men, too.

7190. There would be more friction among the men, and it would cause disturbance at the colliery?—Yes.

7191. In your district are the fines put to some local purpose or passed into the pocket of the employer?—I believe both occurs. In some cases they go to a local institution, such as a reading-room, hospital, or that sort of thing. I cannot tell you whether it is universal or not.

7192. Do they advertise that fines have been inflicted?—I do not think so.

7193. Do you think it would be desirable that they should be advertised? Would that improve the discipline when a man is fined?—Yes, the publicity of it certainly would do good.

7194. You think it might be published usefully. Are there, in addition to the Special Rules, not infrequently by-laws established at collieries?—Instructions by the management.

7195. Instructions by the manager?—Yes.

7196. Those do not come within the Mines Regulation Act or the Special Rules, but they are by-laws of various kinds?—Yes.

7197. The rule under which they are summoned is for not obeying instructions. That is the ground on which these cases are brought before the magistrates. In the case of by-laws those are cases in which fines may properly be inflicted?—There is a rule that a workman has to conform with every reasonable order.

7198. Therefore they say that "inasmuch as you have not obeyed this by-law we can prosecute you before the magistrates"?—I should think they could.

7199. They can, I know. I am asking you whether a number of these by-laws might not be properly met by fines instead of going to Court?—Yes.

7200. When you examined these fines, according to your instructions recently, did you think they were in any way excessive?—I did not.

7201. You did not see that any injustice had been done?—Not at all.

7202. I mean by the amounts?—The amounts are very small—5s., 2s. 6d., and so on.

7203. In your experience, to bring a man before the magistrates, even if he was discharged on payment of costs, would cost the man a great deal more than those fines?—Yes, it would, probably, in most cases.

7204. If he has a fine put on him, it would cost still more than that?—Yes.

7205. With reference to inspection under General Rule 4, do you suggest that there should be two inspections in each of your hewers' shifts?—Yes.

7206. You have a rather unusual rule as to your timbering, which differs, as you know, from the rule in force in the rest of the kingdom?—Durham and Northumberland are the same.

7207. Your deputy has to do more in connection with timbering than the fireman in the other districts?—Yes.

7208. Is that the reason why you think there should be two examinations in your shift?—No, not exactly. My point was more especially with regard to the timbering done by the workman. If he is expecting an official to come in shortly he will be less likely to take a risk and go on working his coal without setting timber than he otherwise might be if he thought he would be left to himself during the remainder of the shift.

7209. It is in connection with timbering rather than any other source of danger that you suggest these two inspections?—It was with regard to the timbering particularly.

7210. Do you want the second examination reported?—No.

7211. You would not report a second examination?—No; the examination during the shift is not reported now.

7212. Unless there is something wrong, you do not want those two examinations reported?—No.

7213. In the report books made by the workmen at the collieries is there a form usually to state the condition of the roof and the sides of the roads?—That would be for the examination before the shift.

7214. Do you think that is generally filled up or left blank?—I think it is filled up as a rule.

7215. The place for gas is always filled up?—Yes.

7216. Have you noticed whether there is anything said good or bad, or any remark made?—It is always marked "Satisfactory," or something of that sort.

7217. There is something said?—Yes.

7218. Now as to explosions, have you had experience with reference to coal-cutting by electricity?—Yes, we have a few machines working.

7219. Have you formed any opinion as to how far there is now means of working these coal-cutting machines which is safe from sparking?—I believe they claim some enclosed machines are safe.

7220. Enclosed motors?—Enclosed motors; but I have not had personal experience of it myself. I believe there have been one or two accidents caused by the sparking even with enclosed motors.

7221. So far as your own experience goes, it is not quite safe yet, so far as you know, to work these machines by electricity where there is any danger of gas?—Apparently not, according to that.

7222. With reference to cables, do you think there is any great source of danger there?—They should be frequently examined.

7223. They are taken along the sides of the road or on the top?—Usually suspended.

7224. If a cable was broken by a fall, that might cause sparking?—Yes.

7225. You think there they should be regularly examined?—Yes.

7226. Have you acquainted yourself with the rules that have been recently issued as to the use of electricity in mines?—Yes.

7227. Is there anything that you would suggest in addition to what those rules provide?—Only last week we were at the Home Office discussing questions connected with the Rules. There is nothing I want to bring before the Commission.

7228. Then as to watering, am I right in this: Under the Special Rules which elaborate General Rule 12, and under the Explosives Order, the watering is required in connection with shot-firing?—That is so.

7229. Do you think watering should be extended beyond that, and that, whether there is shot-firing or not, or gas or not, still the road should be watered?—In very dry mines it would make the condition of the haulage roads better.

7230. With reference to explosions?—With regard to safety, there is no provision for any watering, except when explosives are going to be used.

7231. Do you suggest it should be for the purposes of safety—not convenience or comfort—that that rule as to watering should be extended?—It was with reference to comfort and general condition of the pit I spoke before.

7232. With reference to safety, as apart from general convenience or comfort, do you think it is desirable that the regulations about watering should be extended beyond what is already provided for?—Apart from the general health and comfort of the men, no if there is no gas and no shot-firing.

Digitized by Google

7233. Apart from the general health and comfort of the men, you think the watering regulations now are sufficient, because they apply to where shots have to be fired?—If the watering is done satisfactorily where the shots are fired. Given an explosion of gas, it might not be a very big one, but with a lot of dust about it might develop into a very serious explosion, and under those conditions compulsory watering of the roads would have a tendency to decrease the area of the explosion.

7234. At the present time the provision is in General Rule 12, that there must be watering where shots are going to be fired in a dry and dusty mine?—Yes.

7235. Then in the Explosives Order one of the conditions upon which a permitted explosive can be used at all is that at the time of firing the mine must be thoroughly wet, either naturally or from the application of water thereto. You cannot use an explosive, except a permitted explosive, in mines which are not naturally wet throughout?—Yes.

7236. So that you see that is the present provision. It all has relation to shot-firing. Do you think that for safety, apart from the general convenience and comfort, it is necessary to extend the provisions as to watering?—In the event of an explosion of gas then it would be a great safeguard against the spread of an explosion.

7237. Where there is no gas in a mine do you consider that the watering for safety purposes should be extended?—No, not if the regulations as to shot-firing were properly carried out.

7238. I must assume they are. You consider them sufficient where there is no gas?—Yes.

7239. (*Chairman.*) To make a test, would you say it was not necessary to water in a mine if naked lights were permitted?—Yes; except in the case of shot-firing I think I should.

(*Chairman.*) That is where you draw the line, where naked lights are permitted, and where naked lights are not permitted.

7240. (*Mr. Ratcliffe Ellis.*) With reference to the dust, have you considered whether anything could be adopted to prevent dust going down the pit?—I believe there is a fan arrangement at a colliery in Yorkshire. I have not seen it. In some places the screens are sprayed with water when very close to the shaft.

7241. Have you heard of an arrangement by which the dust is collected in a chamber so as to prevent it going down the downcast shaft, a chamber over the screens where the dust is collected?—I have not seen it. I believe they have a fan at Cadeby.

7242. You think something might be done?—Yes, I think it would be desirable.

7243. Do you think the dust which goes down the downcast shaft is of sufficient importance to warrant means to be taken to stop it going down?—I do.

7244. Have you anything in your mind that could be done with the dust in the direction of removing it?—Watering is the most efficient way.

7245. Have you heard any suggestions as to removing it instead of watering it?—Only by brushing it away, as I described this morning.

7246. In the cases where the watering would damage the mine. There are such cases, are there not?—Yes.

7247. In those cases where watering would not be practicable, can you suggest anything in the way of removing the dust that might be useful?—In some of the collieries it is brushed with an ordinary brush and swept away in that way.

7248. Have you sufficient experience to say whether that is efficacious?—To a certain extent it is, but not entirely.

7249. You said that it would be difficult to prohibit shot-firing except between shifts. What is the difficulty?—In some collieries they fire so many shots. It would curtail the output of coal very largely indeed.

7250. It would interfere with the workmen considerably?—Yes.

7251. There are many cases where the workman fires his own shots?—In some cases, yes.

7252. If he had his shots ready to fire, he could get on. If not, he would have to leave it, and probably lose half a day's work until brought down by the shot-firer between the shifts?—That is so.

7253. You do not consider we are sufficiently advanced now to prohibit shot-firing except between shifts?—It is hardly feasible, I think.

7254. Do you fire shots electrically?—Yes.

7255. Have you any fuses in use?—Yes, some.

7256. Have you formed any opinion as to the desirability of abolishing fuses?—I prefer electric firing to fuses, distinctly.

7257. There are some fuses in your district, are there not, that great merits are claimed for. Has not Mr. W. O. Wood a strong opinion upon fuses?—I do not know that I have ever heard him express it.

7258-9. You think electric firing is better?—I do.

7260. If the timbers are to be too near the face a workman could not work?—No.

7261. So that they must be a certain distance from the face?—A reasonable distance.

7262. If they are very far off the face, then there is a source of danger?—Then the roof does not get sufficient support.

7263. The great point is to know exactly the right point where systematic timbering is prescribed?—They must be guided by the circumstances of each seam.

7264. Have you found, in your experience, that the manager prescribes too great a distance?—I have in some instances. I think I mentioned it this morning.

7265. He is bound, under the Timbering Rules, now to prescribe a distance?—Yes.

7266. To keep him on the safe side?—He has occasionally prescribed too large a one.

7267. It is a matter in which he must use his discretion?—Yes.

7268. You do not suggest any alteration in the rule to meet that?—No, I have been able to meet it without much difficulty, and it has been altered in the cases I have referred to.

7269. In regard to the haulage accidents, you suggest that there should be in new collieries a separate travelling road?—Yes.

7270. That would be perfectly safe, for the men who were travelling that road, from any haulage accident, but on the haulage roads there must be men working constantly?—Yes.

7271. Those men would be still left as they are now?—Yes.

7272. Do you think that the provision of refuges is sufficient for safety?—Yes—20 yards.

7273. The refuges are sufficient as the Act provides?—If the men take advantage of them. They do not always do so.

7274. We cannot legislate for that?—No.

7275. With reference to the engine-winders' certificates you have been asked about, is nerve a qualification for an engine-winder?—Yes, it is very important.

7276. Can you imagine any written examination by which you could ascertain that?—It is impossible.

7277. Are there other qualities of an engine-man that could not be ascertained by an examination?—Such as what? I do not quite follow you.

7278. A man must have a good nerve. I suppose his eyesight must be good?—Yes, and hearing, of course.

7279. He must be a steady man, and a man of good character?—That is already enquired into.

7280. That is thoroughly enquired into before he is employed?—Yes.

7281. I gather from you, you do not see how having a certificate after examination is necessary to secure better men, or to assist the men in getting a situation?—No, I do not think it would. I said before, I believe, that the Durham Enginemen's Association issues certificates on their own account. Some men have told me so.

7282. You were asked if you knew a Bill had been brought in from time to time to grant these certificates. Do you know that Bill was referred to a committee of the House of Commons, and they made a report upon it?—I do not remember seeing it.

7283. With reference to the Special Rules. At the present time there is an obligation put on the owner of

Digitized by Google

Mr. R. D. Bain. 15 Nov. 1926

every mine to submit to the Secretary of State Special Rules for his colliery within a certain time of its commencing. You are aware of that?—Yes.

7284-5. Do you suggest that should be altered, by saying he shall not be allowed to do that until he has consulted with the men?—No. I think my reply on that point was when there was a proposal to alter the Special Rules for the whole district; that then, I think, the intention was to have a general meeting.

7286. I want to see if I understand your principle. At the present time it is the duty put upon the owner to submit to the Secretary of State for his approval certain rules for maintaining the discipline of his mine?—Yes.

7287-8. Do you suggest, before he carries out that requirement of the Act of Parliament, he should invite the men to consider whether he should submit them or not, or in what form? Do you suggest he should not be entitled to submit, in accordance with the Act of Parliament, until he has invited the men to consider them with him?—No, I did not intend to suggest that.

7289. When is he to invite the men, in your view, to this conference?—When there was a proposal to alter the Special Rules, there should be a joint conference between the owners and the men before they were finally submitted to the Secretary of State, so that they might be practically agreed upon before being sent up.

7290. Will you tell me whom he is to invite? I will assume an owner wants to alter a Special Rule, or that he has started a new pit, and under the regulations of the Act of Parliament he has to submit a code of rules. Whom is he to invite?—This would not apply in the case of a single colliery. It was intended for a district. In that case the miners' representatives.

7291. The miners' representatives. Why should not all the miners have a voice?—There is no reason why they should not. They must have a spokesman.

7292. I want to ask you if, in your view, there is not every reason why they should?—They want to speak through their representatives.

7293. Why should not an individual have an opportunity of objecting? His life is as important as anyone else's?—He can, under the present arrangement.

7294. Would you establish a new arrangement by which you deprive the individual of that right?—No.

7295. What I suggest to you is this. If there is to be an alteration, it ought to be on these lines; that the owner should propose the rules to the Secretary of Sate, and, if he wished to alter a rule, then the Secretary of State should advertise this rule, and leave it to anybody who is interested, whether miners' representatives or the miners, or the coal-owners, to object to the rule. Then, if the objections were considered by the Home Secretary to be deserving of consideration, he should appoint some outsider to decide whether the rule should be established or not. Would not that give everybody an opportunity?—Is that a suggestion?

7296. That is my suggestion. Would not that give everybody an opportunity of stating his views and making any objection he thought fit, and of having it considered?—It would.

7297-8. If the owners and the men chose to meet together, it would be quite within their powers to do so; but if they did not, everybody would have an opportunity of making his objection and having it considered?—Yes.

7299. Do you think that would be a fairer way, to let everybody have their say, than the one you are suggesting?—Yes.

7300. That commends itself to you. Did I understand you to say that the Home Secretary should have the power to say whether a rule should be established or not established, absolutely, without any outsider being invited to consider it at all?—There is a clause for arbitration.

7301. This is a new scheme we are considering. My suggestion is, whether the rule is a good one or a bad one, it should not be left to the Home Secretary, but should be left to some person who should be an arbitrator. I do not mean two arbitrators and an umpire as at present proposed, but to some person who should be an arbitrator, and who should decide after hearing all that has to be said, whether the rule should be established or not?—Yes, and report to the Secretary of State.

7302. His decision would be whether it was to be established or not?—Yes.

7303. After he had given his decision, I do not propose to give the Secretary of State the right to say Aye or Nay to it, but he must accept his decision. Would that meet with your views?—Quite, I think.

7304. (*Chairman.*) I understood you to say the contrary—that you would be satisfied that the Secretary of State should have the power himself of setting up a rule, but he should be compelled beforehand, as he is in the case of the Factory Act, to give a hearing to all sides. You do not seem very clear on the point. It does not seem to be a matter that you have thought about very much?—I have not very much. I have practically had to think about it now.

7305. (*Mr. Ratcliffe Ellis.*) Of course you have said that managers of mines are capable men?—Yes.

7306. And without any disrespect to the inspectors, you would not say that there are not managers who are just as good men as the inspectors?—Quite so.

7307. The Home Secretary, of course, would act on the advice of his inspectors. Do you not think in an important question like the management of a mine, where the manager and the owner are responsible, it is fair that they should not have an opportunity of taking an outsider's opinion on a question they might consider of great importance?—Certainly? but I did not understand that anything else was suggested.

7308. What was suggested before was that the Home Secretary should be entitled to say whether a rule should be established or not irrespective of an arbitrator?—No, I think the managers and the owners and the workmen, too, ought to be able to have a say in the matter.

7309. You think an arbitration of some kind should be permissible?—Yes.

7310. (*Chairman.*) The Factory Act agrees with that view that the mineowners and the men and everybody interested should have their say, and be heard before the Home Secretary. The point is, after having had their say, the Home Secretary should be bound to put the matter to arbitration. He might put the matter to arbitration, and say: "This is a matter I have no very decided opinion about, and I should like to put the matter to arbitration. I do not want to decide myself. I should prefer somebody else to." I asked you whether, supposing the Home Secretary does give a definite conclusion as to whether a Rule ought or ought not to be set up, he should have the power or not to say to the mineowners, "I insist that that Rule should be set up." It is not a question of people not being consulted. Everybody agrees that everybody should be consulted. The point is, who should be at the top of the tree, the Home Secretary or the umpire or arbitrator, whatever you call him?—The umpire, if one is appointed.

7311. According to the scheme I have suggested, it might never come to arbitration at all. My view, which I put for your consideration, is that the Home Secretary might have a clear view as to whether a certain Rule ought or ought not to be applied. Having that clear view, he says, "I apply this Rule after having heard all sides." The suggestion of Mr. Ellis is that the Home Secretary ought to have no such power. Whether he has a clear view or not as to whether a Rule ought or ought not to be complied with, it should be in the power of the mineowners, also the miners, I suppose, if they objected, too, to say, 'We do not accept the Home Secretary's decision; we will have arbitration on the matter." That is the only point?—Yes.

7312. I ask whether you think it better that there should be arbitration?—I think if there was any great objection to a Rule which the Secretary of State proposed there should be an arbitration.

7312*. (*Mr. Ratcliffe Ellis.*) With reference to ambulances, would you consider it desirable that it should be a qualification for sitting for a certificate of competency that a man should have an ambulance certificate?—I think it would be desirable.

7313. As an additional qualification. What is the object of making any change is the present system of examinations?—For certificates?

Digitized by Google

7314. Yes?—I believe the reason was that there was supposed not to be uniformity in the different districts.

7315. Want of uniformity?—Yes.

7316. Your view is with the idea of getting more uniformity?—Yes.

7317. You would not in the second class dispense with *viva voce* examination?—I would not in either class.

7318. That must be done locally?—Yes.

7319. Any system which would secure more uniformity and preserve the *viva voce* examination locally would meet your views?—Yes.

7320. Now with regard to the plans. You say during the last 15 or 20 years you have had no complaint to make about the plans?—No, except in a very few instances, which, I believe, I mentioned.

7321. Would you suggest that it should be necessary to prescribe any particular examination for a person who made a plan?—I think it would be desirable.

7322. What examination is there? Is there any existing examination which would meet it, or would you start a brand new one?—We have not any system here. I believe they have on the Continent.

7323. In the Act of 1896 it refers to a competent draughtsman. If those words were inserted in the Act of Parliament, Section 34, or whatever section it is, that an accurate plan must be made by a competent draughtsman, would that meet your view?—I think it would.

7324. (*Chairman.*) About these printed forms. We have had it I think in evidence in some cases, in the case of the mine officials' examination, the firemen's examination, that printed forms are used which contain the printed words at the end "All satisfactory," and the man simply signs this form "All satisfactory" without filling up any details at all with regard to gas or anything else?—I do not think that is so. The headings are printed, but I think he fills them up.

7325. It is filled up in answer to various questions. He does not consider that his duty is performed if he merely signs a printed form saying all is satisfactory?—No, I should not consider that satisfactory.

7326. With regard to searching for matches or unpermitted explosives or anything of that kind, do you find there is any difficulty in the management searching the men? Do they object to being searched?—I think it is very seldom done in my present district.

7327. If the management had any reason to suspect that the men were carrying down into the mine things they had no business to carry, and were dangerous, do you think the men would submit to being searched?—I think so.

7328. You do not suggest that there should be any General or Special Rule on this subject of searching men?—I believe in some districts they have one.

7329. You have not in your district?—We have not.

7330. Do you think, as far as your experience goes, it would not be required?—I do not think it would be an objectionable Rule at all. I think it might be useful.

7331. (*Mr. F. L. Davis.*) On the question of the "competent draughtsman," I was going to ask you the same question as Mr. Ellis. I do not quite know myself what the surveyors' examination is. Is it not a fact that a surveyor's certificate can be got without any underground surveying at all?—Yes, probably. I do not know what the examination is, though. I cannot speak from my own knowledge.

7332. I am not sure myself. I fancy that an ordinary surveyor's certificate can be got without any knowledge of underground surveying?—That probably would be so.

7333. As Mr. Ellis says, you would have to have some new examination altogether. On the question of discipline Mr. Edwards asked you a question as to whether the reason for discipline being better in your district was that the managers there enforced the Rules, and had them carried out better than in other districts?—Managers and officials.

7334. I wish to ask you if the men have anything to do with it. I will put it in this way: Are the men more amenable?—I think possibly they are.

7335. As well as the manager?—Yes.

7336. Both managers and men?—I think so.

7337. Judging from what we have heard to-day, you have a most reasonable lot of managers in your district, and owners, and apparently a very good lot of men, too. Yours is considered to be one of the districts where there are fewer accidents than many other districts?—I do not know whether that is so or not.

7338. I thought we had that?—I believe it is so. I was referring principally to falls.

7339-40. I am sorry to say Wales is supposed to be one of the worst districts; but with regard to the timbering and accidents in the face, the worst and the best districts seem to be exactly on a par from those figures?—There is apparently not much difference.

(*Dr. Haldane.*) Wales was not the worse, nor was Durham the best. Scotland is a long way worst, and the Midland district, Nottingham, best. I see by the table the average death-rate for the Midland District is .39 and for the West of Scotland, .67.

7341. (*Mr. F. L. Davis.*) I am wrong in both of my assumptions. First of all, your district is not the best and Wales is not the worst?—Mine is not the best.

7342. I think you said in your examination this morning that, if properly caried out, Rule 1, as to ventilation, was all that was required?—Practically so, I think.

7343. As to safety catches, would you go so far as to make it compulsory to use them?—In the shafts, no.

7344. A safety catch on the top of the pit?—There are detaching hooks where the speed exceeds a certain limit.

7345-6. I understood you to say you would make the use of a detaching hook compulsory?—I think so.

7347. Would you go so far as to name the particular detaching hook that should be used?—No, I do not think that would be desirable.

7348. I thought it was rather a responsibility. How would you manage that, then?—A detaching hook should be employed when the speed in the shaft exceeds a certain limit.

7349. Leave it to the owners to get the best they can?—The same as they do with lamps, and everything else.

7350. (*Mr. Smillie.*) Have you any women employed about the pit banks in Durham?—Very few. I think about 20.

7351. In a general way, would you say pit bank employment for women is safe or suitable employment for women?—I see there are only 17 altogether.

7352. In your county?—In my district altogether. Some of them are employed in granaries, I believe.

7353. Have you any opinion as to the suitability of the employment as being specially dangerous to women because of their clothing?—I do not think in the work which they are employed at in my district. Very often it is cleaning offices, and that sort of thing.

7354. That is not picking tables or pithead work?—There is none of that.

7355. Do you think that work at picking tables and pithead work is suitable for women?—I have no experience of it.

7356. You have had experience of lads and men picking?—Yes. We do not get many accidents with those.

7357. That is rather a dirty employment?—Yes.

7358. You cannot give any opinion as to whether it is suitable employment for women?—I could not without seeing the circumstances.

7359. You have not had much experience of it. Do you know there are a considerable number of young girls and women employed at the pit bank in Lancashire and Scotland?—I believe so.

7360. Have you unskilled foreign workmen employed in the mines in your district?—None, I believe. I was inquiring some time ago. I only had one, and he is a naturalised man; he has been there for a good many years, and is a very good workman, I believe.

7361. I suppose a person who was deaf you would consider rather disqualified for working underground?—Yes.

7362. Or dumb?—Deaf would be the worse of the two.

7363. Because of the fact that men are often warned of danger by their hearing?—Both by falls and engine

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906.

sets running, and horses moving and timber breaking, etc.

7364. Would you think an absolute ignorance of the English language would make it more dangerous for persons employed—supposing half of them did not understand the English language. Would it be likely to be more dangerous to themselves?—I suppose it would.

7365. You would not take it as an extra qualification that the man did not understand the language?—No.

7366. That is putting it very mildly?—I have not any case of the sort.

7367. You could imagine a case of the sort?—I do not think it would be desirable.

7368. You could imagine a mine in which 200 men understood in the ordinary way the English language, and 200 men were absolutely ignorant of it. Would you think, from your own experience as a Mines Inspector, that the 200 men who did not understand the language could possibly understand the orders given to them?—They could not.

7369. Would their employment be as safe, other things being equal, I mean being equally intelligent?—No.

7370. You have had no experience of it at all?—No, it is only an opinion.

7371. Would you say a practical knowledge of mining would be a disadvantage to Inspectors of Mines?—No.

7372. Will you go the length of saying that a practical knowledge of mining should be necessary or compulsory?—It is necessary now.

7373. A practical knowledge of working at the face and similar classes of work in the mine would not be a disadvantage, at least?—Not at all.

7374. Do you say it would be an advantage?—I do not think I would go that far.

7375. Given two men of the same skill and scientific knowledge, and one had spent 10 or 15 years of his life as a working miner, other things being equal, which of the two would you prefer for an inspector?—With equal skill and qualification?

7376. Equal skill and scientific knowledge?—Possibly the man who had the face experience as well.

7377. You say possibly you would prefer that man, other things being equal?—Yes.

7378. Would it not place him in a more advantageous position to discover and point out dangers?—I think under the present system the inspectors are perfectly capable men.

7379. I want something else. We are anxious that practical miners, other things being equal, should be appointed as inspectors. I was wanting to know in the first place as to whether practical knowledge would be a disadvantage, and you say no?—No. I have already answered some questions on that subject.

7380. I think you have answered since I came in that you considered inspectors had sufficient power under the present rules to enforce the Act?—I think so.

7381. Are there any collieries in your district in which they use naked lights?—Yes.

7382. In the event of an accumulation of gas being discovered, or gas in small quantities, have you power at the present time to enforce safety lamps?—I believe that question was dealt with in my answers this morning. I said where gas was given off or had been found, safety lamps should be put in.

7383. Have you power to enforce them?—By arbitration you could.

7384. It might take two years?—It might take some time.

7385. Six months, perhaps?—Six months possibly.

7386. Do you still say, in the face of that, you have sufficient power? An explosion might take place before the arbitration was decided?—As a rule in my district where gas has been found lamps are put in without question.

7387. That is a rule in your district. You answer in a general way you think inspectors have sufficient power at the present time?—Yes.

7388-9. We have had cases before us here in which inspectors advised on two or three occasions that lamps should be put in, and they were not, and an explosion took place. Do you think an inspector has sufficient power where he is powerless to enforce the putting in of safety lamps when gas has been found in dangerous quantities?—He has power to take action under General Rule 8.

7390. He has not power to enforce the use of safety lamps without that?—No.

7391-2. Has an inspector sufficient power if that is the case?—I think so, with a further power to go to arbitration with the consent of the Secretary of State. He is not able to do it on his own initiative.

7393. You say it is more satisfactory that the inspectors appointed by the men should be working in the mine which they are to inspect?—Yes.

7394. Is it not a fact that men may be employed in a large mine in the same part of it for years?—Yes.

7395. Without having any knowledge of any other part of it?—Yes.

7396. Where does the advantage come in?—They will perhaps know more or less about it. They will know their own district of the mine, at any rate, and probably from talking and interviews with other workmen.

7397. Is it not a breach of the Mines Act to be in any working place other than their own?—Without permission, yes.

7398. It is possible men may not know any other part than that part they work in themselves?—Yes.

7399. Where does the advantage come in?—They would know the part they worked in.

7400. It might be a tenth or a twentieth part of a large mine?—Yes.

7401. Is that the only advantage really?—They probably would know part of the condition of it through hearing from their fellow-workmen.

7402. Is there any disadvantage that you know of? Is there a danger that men who are working in a mine and reporting adversely might be dismissed?—I do not think so.

7403. You do not think there is any danger in any mining field in Great Britain that that would take place?—I must really speak for my own district—I cannot answer for others.

7404. Have you ever heard of such a thing?—Not recently.

7405. Does that mean you have heard of it?—I cannot recall a case.

7406. Could you say, then, that a person who is directly employed by an employer is as free to report on the conditions of the mine as a person employed in another mine which might be miles away?—I think so. I must speak for Durham only. Under our system the Miners Union would take the matter up directly if there was any question of the sort.

7407. I think you said a person holding a first-class certificate of competency for a Mines Inspector would be sufficiently skilled to act as a Mines Inspector, or might be sufficiently skilled?—Without further examination?

7408. Without further examination?—I do not think I said that.

7409. I think in answer to Mr. Ellis you said you had no doubt at all that some of them were quite as good?—Certainly; quite as skilled men as the inspectors.

7410. Supposing it was proposed that a lower grade of Mine Inspectors who held first-class certificates of competency were to be appointed and paid by the Government, would you have any objection to their taking the place of the present inspectors appointed by the workmen and paid by them under Rule 38, I think?—I think I said this morning that I did not believe in a very great increase of Government inspection.

7411. I need not deal with it again. With reference to watering, in answer to his Lordship you said that you would make the presence of naked lights the test of the line which would determine the need of watering. Have you known places in which there were cases of accumulation of fire-damp in collieries where there were naked lights?—An accumulation of fire-damp?

Digitized by Google

7412. Have you known of cases of an accumulation of fire-damp in collieries that were worked by naked lights?—I do not think I have. Lamps would be put in afterwards if it was found or should be.

7413. There might be an explosion in a dry and dusty mine where no watering had taken place before lamps were put in?—Yes.

7414. I suppose gas makes its appearance in many cases where a mine has been worked for 10 years?—I believe that is so in some cases.

7415. I have known it personally. It might be a dry and dusty mine, where no watering took place, but you say you would make the question turn on whether it was a naked light pit or no.

(*Chairman.*) Whether or not it should be watered, I understood.

7416. (*Mr. Smillie.*) Mr. Ellis put it to you, in a mine which was not worked with safety lamps, and in which there was not shot-firing, is it necessary, although dry and dusty, that there should be watering, and you said "No," and then his Lordship said would you make the test whether naked lights were used in that mine, and you said "Yes"?—In all my pits where naked lights are used they are naturally damp. I do not think there is a case——

7417. I want you to deal with places where they may be dry and dusty and worked with naked lights. Might there not be an accumulation of fire-damp in a mine of that kind, which, if an explosion took place, would take up the dust?—If an explosion occurred, no doubt the dust would propagate it.

7418. Would it not be dangerous, where naked lights are used, to neglect watering in a mine?—The probabilities are so remote of a large explosion of gas in an engine plane in such a colliery that it practically comes to nothing.

7419. Is it a fact that there are more explosions where there are naked lights than safety lamps?—I believe so.

7420. Do not statistics prove it? Consequently, you would say in a dry and dusty mine, where there is no shot-firing and where safety lamps are not used, you would not have watering there. That is your answer to Mr. Ellis.

(*Mr. Ratcliffe Ellis.*) He would not insist on it.

7422. (*Mr. Smillie.*) What is a support under your timbering rules? Is it a prop, or the coal face, or a building? Would the end of a crown be a support under your Special Rules?—I think not.

7423. I do not know whether the term is the same?—You mean the head tree at the top of the prop.

7424. Yes?—The timbers in our case would be the props. They have to be set at recognised distances.

7425. The rule says no part of the exposed roof shall be more than three or four feet as the case may be from a prop, coal building, or other support, but the end of a crown which may be three feet away from the prop is considered a support. I was anxious to know whether the same thing applies in your Special Rules?—We should treat the prop itself as the roof support.

7426. Could you not have the props three feet from the working faces and have crowns overhanging the workmen to prevent falls?—Yes, that is done; the crowns or head trees often extend considerably beyond the top of the prop.

7427. To some extent in systematic timbering in the French coalmines that was the method of doing things?—I believe so.

7428. It has tended to greater safety so far as statistics are concerned?—There has not been any marked increase so far in my district since special timbering rules came into force.

7429. The special timbering that takes place in the coalmines in France has reduced the accidents very much from falls?—Yes.

7430. You know that from statistics. You know no reason but the question of cost which prevents it being done here—the same system of timbering?—I am not sufficiently conversant with the Courrieres timbering.

7431-2. Mr. Ellis said, and you agreed with him, that a necessary qualification for an engine-winder is nerve?—Yes.

7433. Does not the same thing apply to a mine manager?—Yes.

7434. Still, he requires a certificate in addition to his nerve?—Yes.

7435. He requires a certificate of competency although one of the things specially required is nerve. Colliery managers, so far as my experience leads me, require nerve, too?—No doubt.

7436. Do you know whether or not managers make inquiry as to whether a person is strong in the nerve when he is engaged as engine-winder?—They always make inquiries, to the best of my knowledge, of the previous employers.

7437-40. In your district?—I think so.

7441. You suggested, I think, that the workmen should have the right to protest against Special Rules through their accredited representatives, as a collective body rather than individually?—Yes.

(*Mr. Ratcliffe Ellis.*) I go further; my suggestion is that if an individual workman chooses to object, he should have an opportunity of doing so.

7442. (*Mr. Smillie.*) I suppose you will agree with me that the persons who should be most deeply interested in the safety of mines are the workmen who risk their lives every day?—Certainly.

7443. Do you think that suggestions from them as to Special Rules should also have the same right of consideration and attention as suggestions from the owners?—I do.

7444. Would you give the workmen power to initiate Special Rules as the owners now have power to initiate and send to the Home Office Special Rules?—Yes.

7445. If the workmen collectively in their own interest and for their own safety drew up and suggested Special Rules, would you have any objection to that being done?—No.

7446. Do you think Special Rules are more likely to be carried out if the workmen are consulted in the framing of them than if they are ignored?—I have been suggesting that they should be.

7447. As to the books of the mine which the firemen on examination have to sign, have you known of the entry being printed right to the end, the last sentence being "All in good order," and merely the signature of a fireman added to that?—I think not. It is always filled up, I think. The headings would be printed and the details are filled in in writing by the fireman.

7448. Would you say it was satisfactory if the whole thing was in print and merely a place for the signature of the fireman and "All in good order"?—No.

7449. (*Dr. Haldane.*) At the Wingate Colliery explosion I understand there was a shot fired in one of the main roads in the mine?—Yes.

7450. That was an unstemmed shot with a safety explosive?—Yes.

7451. Can you tell us what the explosive was?—Geloxite.

7452. That is on the permitted list of the Home Office?—Yes.

7453. That shot fired the dust on the road, did it not?—It fired some dust.

7454. There was no question of gas being present?—I do not think it is possible gas could be there.

7455. Is it a fiery mine?—Not in that seam.

7456. Was it worked with open lights?—Naked lights were allowed some distance in, but the faces were all worked with lamps.

7457. Did the explosion spread into the face?—No, it went with its principal violence towards the shaft—and partly up towards the face.

7458. It chiefly went towards the shaft against the air current?—Yes.

7459. Where were the men who were killed, chiefly, except the man firing the shot?—The majority of them were suffocated coming out.

7460. In coming out from the workings they ran into the afterdamp?—Yes.

7461. Was that road a very dusty one? Would you have called it a dusty road before the accident?—The floor was not dusty. There was, no doubt, dust on the sides and the top.

Digitized by Google

Mr. R. D. Bain.

15 Nov. 1906.

7462. Was the floor damp at all?—They put water on to it.

7463. Not naturally damp?—Not in that part.

7464. They did water the floor?—Yes.

7465. Was that with a water-cart?—Just with a tub.

7466. And water was allowed to run out behind?—Yes.

7467. So that the roof and sides were not watered at all?—They were not watered there. No shot had been fired there for years.

7468. It was purely accidental. I mean it was a contravention of orders?—It was without authority.

7469. The watering, I suppose, had not been done with a view to preventing explosions, but with a view to simply get rid of the trouble caused by dust?—Yes.

7470. In other explosions of which you have had experience, have the explosions been mostly confined to the haulage roads. Do you remember Brancepeth, which was one of the last big ones? That was in the haulage road?—Yes.

7471. It did not extend to the face?—No; there was very little damage.

7472. The men at Brancepeth, except those firing the shot, were suffocated by afterdamp,—The majority of them.

7473. On their way in trying to escape?—Yes.

7474. They ran into the afterdamp and were suffocated?—Yes.

7475. Did you help in exploring the explosion at Timsbury?—Yes; that was a dust explosion.

7476. That was in a colliery where they had never seen gas?—Never.

7477. There was not a trace of gas anywhere?—They went down with naked lights immediately afterwards before the ventilation was restored, and there was no gas visible at all.

7478. That, again, was an explosion extending along the haulage roads?—Yes, all over the pit, if I remember right.

7479. It extended a long way. Supposing dusty haulage roads were efficiently watered, sides and roofs, explosions like that would be impossible, would they not?—Yes.

7480. If an explosion did occur at the face, supposing there was no water at the face, but only watering on the roads, the men's escape would not be blocked as it is just now?—The explosion probably would not extend.

7481. It would not extend beyond a limited district, and the way of escape would be open still?—It depends upon where the afterdamp lay. There would still be afterdamp after the explosion

7482. Supposing that the haulage roads, along which the men naturally go to and come back from their work, were freed from the explosion, the way of escape would be open to the men, would it not?—The afterdamp would be carried by the air-current.

7483. Carried away with the air-current?—If the men went out, meeting the ventilation which was carrying on the afterdamp with it, they would still have to go through it.

7484. The haulage roads are nearly always intakes in your district, are they not?—Yes, nearly so.

7485. It would be fresh air that would be coming along these roads after an explosion, supposing there were an explosion at the face?—These men were killed on the main intake.

7486. Yes. I am supposing that the main intake was watered?—Yes.

7487. And if all the haulage roads were watered to prevent explosions these men would not have been killed?—If that road had been properly watered there would not have been an explosion.

7488. They would not have been blocked in by the afterdamp, even if they had been at the face?—No, they had a long way to go from the face—a mile. They were killed in the main intake coming out.

7489. They were killed because they met the afterdamp in the main intake, which was not watered where the explosion happened?—Yes.

7490. Supposing you watered the main intake, you would not have these accidents happening at all?—I think not.

7491. Supposing you had an explosion at the face, the men's way out would not be blocked?—Not if the explosion occurred at the face.

7492. That is the only place where it could occur?—Yes.

7493. (*Chairman.*) I do not understand about the afterdamp. Do you mean in cases of an explosion at the face that the afterdamp might be carried on for a mile, and the men might encounter it a mile off?—Yes.

7494. Supposing the afterdamp was met by this fresh current of air in the intake, what would happen? Would the afterdamp remain in a dangerous condition?—It would be swept away by the ventilating current down the ordinary roads, if they were not very much blown to pieces.

7495. Supposing it encountered people going along the ordinary roads, would the afterdamp be sufficient to affect them much?—Yes, probably it would kill them.

7496. In any case where there is a colliery explosion of firedamp you get afterdamp; but if merely a coal-dust explosion, you also get afterdamp the same as if it was a firedamp explosion?—Yes.

(*Dr. Haldane.*) It is worse.

7497. (*Chairman.*) So that if you get any explosion at all, if you do not water the mines to such an extent that no explosion is possible anywhere, you may get afterdamp?—You would still get afterdamp.

7498. If there is a very small explosion it may occasion a great many deaths from afterdamp?—Yes.

7499. (*Dr. Haldane.*) Supposing the explosion does not affect the haulage roads along which the men come in escaping to the shaft, the effects of the explosion would not be nearly so serious?—If the men had free access to the shafts and main roads, they could escape.

7500. Whereas under the present conditions it is not the case: in these dust explosions the haulage road is usually swept by the explosion?—Very often they occur on the haulage road.

7501. If they do not originate there they extend along the haulage road?—Yes.

7502. So that the men have not a chance, and the explosion spreads to other parts of the mine along those roads?—So far as it is dusty.

7503. (*Chairman.*) Supposing an explosion does not spread, and the mine is well watered except at the face, and a small explosion occurs at the face, then a considerable amount of firedamp would be carried on to kill a good many people, although only a small explosion at the face, and no further coal-dust carried along?—There would be a limited amount of afterdamp created by a small explosion, but it would probably be sufficient to kill some men in the proximity as the wind swept it over them.

7504. (*Dr. Haldane.*) If they were on the return?—Yes.

7505. It is seldom men are in a return in your district?—There would be men on the return side working.

7506. There would be a man or two; but that is not the ordinary means of getting in and out of a mine?—No, usually it is a main intake.

7507. Supposing a man were at work in any part of a mine, he would make for the main intake to escape?—There were four men who saved their lives on this occasion through not coming out into the main intake; they came out and went back again.

7508. They smelt afterdamp and knew what to do?—They were taken back again by an old pitman.

7509. (*Chairman.*) You can smell the afterdamp?—They felt it; they got giddy.

7510. (*Mr. Smillie.*) You have not much time to smell; it is a case of two or three breaths, and then no more. May I put it this way, Dr. Haldane. Supposing you have 200 men working in the same air-current, and in the last district of that air-current, which is the return airway practically, a gas explosion took place, and there was no dust, all the men working in the intake, which would be nearly all the men, would get out safely?—Yes.

7511. Supposing it had been a dry and dusty mine,

Digitized by Google

and that explosion of gas rushed down the main airways, then the probability is that all those men would meet their death from afterdamp, if not by the explosion?—There would be a much larger explosion, no doubt, to reach those.

7512. That is really Mr. Haldane's point. In one case where the watering has taken place in a haulage-road and a main-road, an explosion might take place at the face and not affect the main working in the intake air-course?—Yes.

(*Dr. Haldane.*) And in all the other districts of the mine.

(*Mr. Smillie.*) The afterdamp would go round with the current in the return airway.

7512*. (*Dr. Haldane.*) The reason why intakes are so liable to explosions is, is it not, that these are haulage-roads, and the dust is carried off the tubs?—Very often.

7513. And carried down from the screen on the surface?—Yes, part comes down the shaft.

7514. These are the two main sources of dust?—Yes, and the grinding of the tubs and horses travelling on the roads.

7515. Very small coals grind up. The reason why the returns are usually free from explosion is that there is not dust or only stone dust, as a rule?—There is some dust too, but these accidents are nearly always due to shot firing, and there are not many shots fired in the return.

7516. The doors are blown into a return if there is any return near, and yet it is constantly observed that the flame is not spread in the return?—It did not on this occasion.

7517. Was the return close to the intake in this case?—Yes.

7518. I suppose all the air crossings and doors were blown out?—Yes.

7519. The flame did not spread in the return?—No.

7520. Was that because there was no dust in the return?—They were damp.

7521. A return is more apt to be damp than an intake?—Not of necessity, I think.

7522. Not of necessity, but on the whole. A return carries the moisture from the whole of the pit?—Yes.

7523. Now, about the standard of ventilation. Have you noticed that in different districts, or in different mines, very different opinions are held as to what is a distinct cap? You have had experience in South Wales?—A cap is anything that will show on the flame of the safety lamps irrespective of size.

7524. Are there not great differences in what people call a cap? I mean, some people regard a very small indication as a cap, and they look for it very carefully?—That should be so.

7525. Whereas others pay no attention to small indications. They want a very distinct cap?—I have heard of that. I do not agree with it. I think if a cap is present at all there should be proper precautions taken.

7526. The point is that there are great differences of individual opinion among firemen, and so on, as to what is really a cap, are there not?—That might be so.

7527. The fireman is the person who has to judge?—In the first instance—that is, if he has found it in a working place. The workman also should examine his lamp.

7528. It is not such a very definite standard, I mean not under present conditions such a very definite standard of sufficiency of ventilation?—If the men withdrew as soon as a cap was found, I think the provision would be sufficient.

7529. One fireman would withdraw the men and another would not. Is not that so?—If he did his duty he would withdraw them.

7530. One man would withdraw them and another would not with the same indication on the lamp really?—I do not see how you can graduate caps in any way.

7531. I do not think you can graduate caps. All I wanted to ask you was whether, in your experience, you did not find that there was a great difference of opinion as to what really constituted a cap?—If I found people working with any cap at all I should have them removed, and find out who made the examination and why it had not been done. The working places I am speaking of.

7532. Do you not find that what you would pay attention to the men in the mine would pay no attention to?—I do not think so. The managers would all pay attention to a cap, however small, I think.

7533. I have often been in places where there was a very distinct cap, and no question of removing the men. By a distinct cap I mean a cap I could see quite easily, and other people could see, but not a well-formed cap. I just wish to ask you whether you think it a sufficiently definite indication unless the men are specially instructed as to what is a cap and what is not?—It is a recognised thing; it is fairly well understood by both the officials and the workmen, I think.

7534. My experience is that it is very differently understood in different places—in different mines?—I do not think I have come across that.

7535. You have read the report perhaps of the Courrieres explosion?—I did some time ago.

7536. Do you consider that an accident such as the Courrieres explosion might happen in England at present—*might happen*?—I do not know sufficiently about the circumstances of the case.

7537. (*Mr. Ratcliffe Ellis.*) I do not think it is the report you are thinking of. It has only just come out?—I was thinking of an earlier one.

7538. (*Dr. Haldane.*) I mean the report by Mr. Cunynghame and Mr. Atkinson?—I have seen it, and that is all. I only got it a few days ago.

7539. Do you think you might have in England just now a sweeping dust explosion during a day shift in a large mine killing nearly every man in the pit?—Taking a very dry and dusty engine plane, an explosion might extend all through that portion of the mine, certainly.

7540. And killing practically every man in it?—And kill a great number of men.

7541. Do you think it is desirable that watering of fiery, dry, and dusty mines along the haulage roads, at any rate, should be compulsory?—Yes, I think it would be a safeguard, certainly where it was feasible, as far as conditions of the stone on the sides and roof allowed.

7542. Have you had any experience as to damage done by watering the roof and sides?—Yes, it does considerable damage in some seams.

7543. Could you give us any account of your observations about that? It is rather an important matter?—It disintegrates the stone almost like putting water on to lime in some cases. It makes the bottom soft and heave up.

7544. Can you give an instance of any colliery where this has been observed?—In some of the collieries in Durham it has.

7545. You are aware that watering is compulsory in Westphalia, and that it has been carried out for many years?—No, I did not know that.

7546. You cannot give us the name of any colliery, can you, where that observation has been made?—Yes, I could, if it is desirable.

7547. I should like to know?—At Murton they found great difficulty.

7548. Where is that?—Close to Sunderland.

Digitized by Google

THIRTEENTH DAY.

Wednesday, 28th November 1906.

PRESENT:

Lord MONKSWELL (*Chairman*).
H. H. S. CUNYNGHAME, Esq., C.B.
WM. ABRAHAM, Esq., M.P. (Rhondda).
F. L. DAVIS, Esq.
ENOCH EDWARDS, Esq., M.P.
THOMAS RATCLIFFE ELLIS, Esq.
ROBERT SMILLIE, Esq.
S. W. HARRIS, Esq.

Mr. FREDERICK AUGUSTUS GRAY, called and examined.

Mr. F. A. Gray. 28 Nov. 1906.

7549. (*Chairman.*) You are inspector of the Cardiff District?—Yes.

7550. How long have you been there?—Five years.

7551. Previous to that what was your experience?—I was for 15 years Assistant Inspector of Mines, the first six months in the Manchester district with Mr. Dickinson, and the remainder with Mr. J. T. Robson, in the South Wales district before it was divided.

7552. You have been in South Wales, then, for 20 years?—Yes.

7553. Do you think it is a good thing that inspectors or assistant inspectors should be kept in the same district, or do you think it would be a good thing if they should move occasionally?—I think it would be a great mistake to move them. When an assistant gets a thorough knowledge of the collieries in the district he is of much more value than if he had not that knowledge.

7554. You say that applies still more to the case of inspectors?—It applies much more to the case of the inspectors in charge.

7555. Have you found any difficulty owing to your not understanding the Welsh language?—I do understand it.

7556. You do not speak it?—I speak it as well.

7557. I rather understood you did not?—That was the reason I was removed from the Manchester district back to the South Wales District.

7558. Do you think it ought to be made a condition of service in either of the South Wales districts that the inspectors should know Welsh?—I think it is as well it should be so.

7559. Would you say if the inspectors know Welsh it is desirable that both his assistants should know Welsh? Do you say all three inspectors should have a knowledge of the Welsh language?—It would be better so, but I do not think it would be absolutely necessary as long as the two assistants spoke Welsh, or three assistants, as the case might be. The chief might be a non-Welsh speaker.

7560. You have found your knowledge of Welsh useful?—Yes, I find when investigating an accident at a colliery the witness will very often give me all his evidence in English, but when we meet at the inquest the next day he will ask at once to be allowed to give his evidence in Welsh, and I think that is partly due to nervousness for fear he makes a mistake.

7561. I should have thought if you knew Welsh he would have been glad to have spoken to you in Welsh about the accident?—They often do.

7562. Sometimes they will speak to you in English, although afterwards at the inquest they speak in Welsh?—Yes.

7563. So that if you did not understand the Welsh language you would not be able to compare the evidence the man gave before you with the evidence he gave at the inquest?—That is so.

(*Mr. Ratcliffe Ellis.*) It would be translated at the inquest.

7564. (*Chairman.*) The Welsh would be translated, so that you would know whether it was the same evidence or not?—Yes, you would.

7565. With regard to the work in your district, do you think you and your two assistants—you have two, I think——?—I had two, I have only one at present, owing to a recent promotion.

7566. You will get two?—I shall get two.

7567. Do you think with two assistant inspectors you can get through the work properly?—Yes; so far we have been able to manage to do it. ✓

7568. With regard to efficiency of inspection, do you consider you and your two assistants are sufficient to cope with the inspection of your district?—So far we have been able to, but I do not think it will continue so, as we are rapidly increasing in both men employed and in output. ✓

7569. The persons employed are now more than 87,000, as compared with 37,500 in the Swansea district?—Since 1901 the persons employed have increased by 6,660.

7570. Would you suggest that the districts might be subdivided in a different way, that you and the inspector for the Swansea District might have a fresh partition of your duties?—I think there is a good deal to be said against that. The Swansea district is very difficult to work on account of the distances to travel, and in a lot of the collieries the seams are highly inclined.

7571. So that you think, as far as your knowledge goes, the Swansea inspector has plenty to do in his own district without taking any part of yours?—I think so.

7572. How about the clerical work in your district? You have the usual £25 a year allowance. Do you find that enough?—I have never complained about it not being sufficient.

7573. Can you get all the work done you think ought to be done for the £25, or have you to supplement it out of your own pocket?—I have to do that, and I have to do extra work to keep going. ✓

7574. You have to work longer hours?—Yes.

7575. Longer hours than you consider perhaps an inspector might reasonably be called upon to work?—I work a good many hours more than an inspector should be called upon to do. ✓

7576. What hours, may I ask, do you work?—I generally work from half-past 8 in the morning till 8 at night.

7577. Then you have a working day of 11½ hours, and I suppose a good bit of that is spent in travelling?—A good deal of it.

7578. You do not work after 8 o'clock at night as a rule?—No, I object to doing that. You get weary of it, although when it is necessary I am at a colliery all day and all night.

7579. You mean investigating an accident?—Yes, if a serious accident occurs I stay there. Rule 34

7580. As regards General Rule 34, do you think that inspection by the men is sufficiently carried out in your district?—Only in a few collieries do the workmen make their inspection regularly.

7581. What do you mean by "regularly"?—Monthly.

7582-3. Once a month in some parts?—In a few collieries only: but in the greater number of collieries

Digitized by Google

advantage is not taken of the General Rule at all. In 1901, I may say, I got out the number of inspections, and they are in my report for that year.

7584. What was the general result?—It was bad.

7585. That is to say there were a certain number of mines in which the inspection was regularly carried out once a month; there were some where it was carried out irregularly; and there were a great number in which it was not carried out at all?—That is so.

7586. Do you attach much importance to this inspection by the men?—I think it has a very good effect. It is generally very thoroughly done, and I believe where it is done regularly it makes the minds of the men easier.

7587. Why do you suppose that they do not take any trouble to do this inspection in a great many mines?—Partly, I think, because it is rather fatiguing work, work to which they are not accustomed.

7588. You think there is a difficulty in getting the men to do the work?—Yes.

7589. Do you think they are paid sufficiently?—They would be paid at the same rate as they would earn at their other work.

7590. Would it be harder work than their other work?—Quite a different work altogether.

7591. It would be more responsible work?—Yes, and more fatiguing.

7592. Is that so everywhere, that the men are only paid the ordinary hewers' wages for this inspection?—I believe that is the custom.

7593. You think that is so?—Yes.

7594. They are always paid the ordinary hewers' wages?—They are paid what they would earn at their ordinary work.

7595. If a man is earning 5s. a day at his work, he is given 5s. a day for this inspection?—That is it. In one instance that I have in mind it took 14 men a whole day to make the inspection of one colliery. That would mean 14 men would divide into gangs of two, and that would make seven bodies of men going round examining, and it would require seven officials.

7596. It would require seven officials to go round with them?—Yes, to accompany them.

7597. That is difficult sometimes to arrange for?—Yes, it is very difficult if the notice is given at the last minute, because you have to arrange for other people to fill the posts of the seven officials that you take off.

7598. Have you heard the men complaining of the expense of these inspections?—No, I have not.

7599. Do you think they are quite content that the expense should be paid by themselves?—I have not heard them complain of having to do it.

7600. With regard to the discipline in the mines within your jurisdiction, how is that getting on?—I think it is improving. The discipline is not so good as I should like to see it, but I think there is a gradual improvement taking place.

7601. How is discipline usually enforced in your district, by fine, by dismissing the men, or by prosecution?—Generally by prosecutions.

7602. The number of prosecutions of men by owners in your district is, I think, the second highest?—I can give you the figures, if you like.

7603. York and Lincoln are the only districts where there seem to be more prosecutions. Do you consider that discipline is sufficiently maintained by prosecution—that is to say, that the owners prosecute the men in all cases in which you think it is desirable they should be prosecuted?—I think so. The larger firms have ceased fining altogether for some time.

7604. They do not fine?—No.

7605. They prosecute?—They prosecute.

7606. They warn the man for a small thing, but if it is a matter of any importance they always prosecute?—So they inform me. Very often a man begs to be fined rather than to be taken before the Magistrate, and if it is not a very serious thing he may be fined 2s. 6d., and a notice of the fact put on the pit-frame at the pithead.

7607. Do you ever inspect this list of fines in mines where fining obtains?—Yes, I do.

7608. With a view to finding out whether persons are fined where they ought to be prosecuted, or to find out whether the fines were exorbitant?—With a view to seeing if the fines are reasonable.

Mr. F. A. Gray.
28 Nov. 1907.

7609. Supposing you find, on looking over those fines, that a man was fined for something which appeared to be a gross breach of discipline endangering workers, what would you do in such a case as that? Would you remonstrate with the owners, and say the man ought to be prosecuted?—I think I would.

7610. You have not come across a case of that kind?—No. Fines are generally very small.

7611. And very reasonable?—Yes.

7612. How about the inspection of the mines by officials under Rule 4?—As it is now the fireman makes one inspection in the morning, before the men go to work, and then he makes another during the shift. I think two inspections of the working places by the fireman, in addition to the first, should be made compulsory.

Rule 4

7613. You think that might be put into the Act of Parliament?—I do.

7614. That there should be two inspections during a shift?—Yes, instead of one.

7615. As to reporting the result of these inspections, do you think in every case they should be reported in writing, or would a verbal report suffice?—I think each inspection before a shift should have its result reported in a report book as required at present, but I do not suggest that the other inspections should be reported in a book, and do not think it necessary.

7616. In your district do you know of cases where there are printed forms which the fireman would be required to sign, and which, without going into details, would merely say "all satisfactory" in print, and he would merely sign a report saying all was satisfactory, and not consider it necessary to go into the various details?—In most of our collieries the report books are printed with headings, such as "Presence of gas." The man would write opposite that, if he found it clear, "None"; or if he found a place or two containing gas, he would add, "Except David Jones' stall."

7617. The manager of a mine would not accept as a proper report a paper which only had the signature of the fireman to that part of the report which said all was satisfactory?—No.

7618. The manager would see that he filled in all the details as to whether he found gas or not?—Yes, and the report is generally initialled by the under-manager every morning.

7619. It is the duty of the under-manager to see those details are gone into—that is to say, if there was gas he would say there was, and if there was none he would say there was none. He would not think his duty was done if, when he found there was no gas, he made no remark at all. He would be bound to write the word "None" if he found there was no gas?—Yes.

7620. With regard to districts assigned to the fire men, do you think they are too large in your district, or not?—I do not think they are too large. As a rule the districts assigned to the fireman range from 35 to 50 working places, and in some places I have found them as low as 25, but I think the fireman's hours are far too long.

7621. On the whole, you think the districts are fairly satisfactorily mapped out?—I do. I think I would like to say something about the firemen before we leave the subject.

(*Chairman.*) Certainly.

7622. (*Mr. Enoch Edwards.*) Do you say you think the hours are too long?—I think so.

7623. What are the hours you have found?—From half past four in the morning to 4.30 or five in the evening.

7624. Those are the hours for the fireman?—Yes.

7625. That is his daily routine?—Yes.

7625*. (*Chairman.*) What does he get out of that for meals?—Any length of time he likes. I have here a statement by a mining engineer, who altered the system because he considered the hours were too long, "In my opinion the hours of the firemen were, previous to 1904, too long. The firemen were supposed to be at the collieries to descend not later than 4.30 a.m. for the day shift, and were not allowed to ascend until the pit finished work, which on four days of the week was

Digitized by Google

Mr. F. A. Gray. 28 Nov. 1906.

at 4.30 p.m., one day at 4 p.m., and one day at 2 p.m., thus making 69 hours per week at the least, as in some cases it was absolutely necessary for the firemen to descend not later than 4 a.m., to get around his district before the workmen descended. The night shift firemen descended at from 4 p.m. (where districts were a long distance in from the pits) up to 4.45 p.m. (in shorter districts), and ascended at 4.30 a.m. I found some of the morning firemen did not always get to the pit at 4.30 a.m., and the result was the time at their disposal was not sufficient to allow a thorough and proper inspection to be made—in fact, I had followed firemen through districts and found gas in cavities which they had to confess they had missed in their inspection through being late in getting to the pit in the morning, and therefore had not time to examine every bye-road, airway, and stall road. These firemen were discharged. I determined to make a change, so that the firemen would have shorter hours, and give them a longer interval between shifts for rest, and also remove their excuse that they had to practically be at the pit or in bed, and they were liable owing to this to oversleep themselves. The arrangement now is, that all day firemen must be at the steam coal pits not later than 4.30 a.m., and no lamp must be given to a fireman who is later. Another shift of firemen descend the pits at 1 p.m. (afternoon), and releases the day shift firemen in their districts, the day shift firemen ascending at 2 p.m. These afternoon firemen take charge of the districts, and commence to make an examination at 4.30 p.m. (clearing all men out of the faces who may have delayed their departure, as the shots are fired between 5.15 and 7 p.m.), and finish their inspection for the night men to descend at 7 p.m. These firemen must again visit every person employed in their districts before leaving the colliery at 10.30 p.m. Two night overmen descend each pit at 7 p.m., and two firemen descend at 10 p.m. These overmen and firemen must also visit every workman in the pit, the overmen leaving at 4.30 a.m., but the firemen stay till 7 a.m. The firemen who descend at 10 p.m. have to be at the pit bottom at 4 a.m., and should a day fireman be absent at 4.30 a.m. one of them must make an inspection. In one pit I have also replaced the night master hauliers by assistant firemen." The effect of that is he thought the hours were too long.

7626. That you consider satisfactory?—It is an improvement, certainly.

7627-30. Now, with regard to accidents, last year you had the National Colliery disaster, which, of course, made your accidents from explosions very high. In your report on this accident in the National Colliery you state in your opinion (and also in the opinion of Mr. Robson) the accident, so far as the character of it was fatal, was very much increased by insufficient watering?—Yes, it was.

7631. If there had been sufficient watering the accident would have been confined within narrow limits?—That was my opinion.

7632. There would have been an accident, but it would not have travelled so much as it did?—There would have been an accident, but it would have been curtailed.

7633. You say that in your opinion statutory powers ought to be given to compel efficient watering of the floor, roof, and sides. I imagine you adhere to that opinion, that statutory power ought to be given for effective watering?—I am strongly of that opinion.

7634. What have you to say upon this question of watering. To what extent do you think watering ought to made compulsory?—I think that the whole of the main roadways should be thoroughly watered.

7635. That is on the floor, the roof, and the sides?—Yes, and I may say that watering is practised to a great extent in 62 collieries in my district, which are fiery, and dry, and dusty, there being 444,543 yards of piping in use daily for watering, of which 188,835 yards have been put in since 1901.

7636. Do you think those 62 mines in your district are efficiently watered?—Most of them are.

7637. Do you think, even although those 62 which you say are considerably watered, that some might with advantage be still further watered?—Yes, they could be still further watered. I think you saw one of them which was fairly well watered at Ferndale.

7638. I must say that I thought it was fairly sloshy to walk along. Do you consider that mine I went down was efficiently watered?—That was efficiently watered.

7639. Would there be places in mines in your district where the state of the roofs was such that the roofs could not be kept wet always, that there would be danger of the roofs giving way?—There is always that danger.

7640. How would you provide against that?—The roof, as it were, gets used to the water in time.

7641. You think at the beginning that there might be difficulty, but if the mine-owners were to stick to watering, in course of time the roof would get thoroughly wet, and it would stand watering?—When you first water cliff or shale roof it is something like watering unslaked lime, but in time that action ceases.

7642. How about heaving of the floor owing to watering?—We have the same heaving as the other districts have, and we continue watering.

7643. Do you think there are any mines in your district where it would be practically impossible, owing to the nature of the roof and the floor, to water the whole of the haulage roads. There is nothing to prevent it, is there?—No.

7644. You think the whole of them might be watered?—Yes, the whole of them.

7645. Supposing during a part of the way there was a floor and a roof which would be rather difficult to water, owing to the nature of it, and that in another part of the haulage roadway there was a roof and floor that would stand watering very much better, would you think it necessary to water the whole of the roadway, or would you consider well-watered zones would be sufficient to prevent an explosion spreading?—I think well-watered zones would answer the purpose, as I advocated in the National Explosion Report.

7646. You think watering by zones would be sufficient. You say "With regard to watering we do not mean necessarily to advocate a complete drenching of the whole of the mine with water. The isolation of districts by a well-arranged system would in many cases be sufficient. But this explosion has confirmed our view of the importance of this subject, and we think it merits very serious attention"?—And a little further in front of that we advocate arching a length of each roadway, as it leaves the shaft, and keeping that thoroughly free from dust.

7647. Practically, you abide by what you said in this report. Nothing has occurred since to make you change your opinion?—Nothing has occurred to change my opinion.

7648. I see that this was only on the 11th July last year. Have you expressed these views to the mine-owners in your district, and how far do they agree with them?—Yes, and they have had copies of that report sent to them.

7649. Have you had any communications with them about it?—I have talked to them about it.

7650. Do they object to this system of watering?—Do you mean the general system?

7651. The system which you advocate. Do they consider that the mines are fairly well watered already, or do they consider it is their duty to go on with the watering, and, as occasion arises, to make further provision for watering?—Most of them think they water sufficiently now.

7652. You do not think so?—No, I do not. There are a few cases where they are going in for this arching to isolate the districts.

7653. Have you found any difficulty to make them do sufficient arching?—Arching, yes.

7654. They will not do it?—They will not do it. As we are upon the subject of watering, I may say in the Albion Colliery that there was a clear case of a wet road stopping the explosion.

7655. When was that?—1894. The explosion travelled all through the colliery except one district, and it did not go into that at all, because it was naturally wet.

7656. Then in 1902 you made a report of an explosion in the Fochriw Colliery, by which eight workmen lost their lives. You say the explosion would have resulted in a far greater loss of life but for watering?—That is another case where the explosion was restricted by a naturally wet engine plane on the intake side, and a wet staple pit on the return side.

7657. Although only eight men were killed by the explosion, you think if the mine had not been well

Digitized by Google

watered there would have been more killed?—The whole of the men would have been killed.

7658. How many do you think would have been killed if the mine had not been watered?—I could not say from memory.

7659. Do you think all who were working there would have been killed?—Yes.

7660. (*Mr. Enoch Edwards.*) You do not mean all the men in the pit?—In that district.

7661. (*Chairman.*) That would have been a couple of hundred or so?—No, it was in the night shift. It would have meant thirty to forty.

7662. Have you thought of any means of preventing the dust from the screens coming down the shaft?—Only by removing the screens to a greater distance from the shaft; that is the only effective way.

7663. Or by spraying the dust as it goes down the shaft by a system of spraying in the shaft itself?—That would meet it, or board off the screens and put exhausting fans to work.

7664. If you had an efficient system of watering, even if it was only zone watering, and not watering the whole of the main roadways, do you think in that case it would be necessary to have any particular type of wagon, or do you think that that might be left to the colliery owners?—I was instructed by the Home Office two or three years ago to take the matter up with the coalowners, which I did, and found that I could not get them to alter the trams on account of the great alterations that would have to be made in the screening plant.

7665. You would like an improved type of wagon?—In some cases I got as many as 600 trams altered, but in other cases they completely refused to alter them.

7666. Did you report that to the Home Office?—That I cannot remember.

7667. Did you make a report to the Home Office on the subject of altering wagons?—I think I did in my report for 1902.

7668. Supposing the mines were well-watered, do you think it would matter what type of wagon they had?—No, I do not think it would. This is the general tram in use. (*Producing photograph.*)

7669. That is the one I saw?—That is the one you saw, and this is a tram at a colliery where I got them to put a door in the end instead of cross-bars.

7670. If the mine was efficiently watered, it would not be necessary for the trams to be watered as they went along?—I do not think it would, especially if they had a shower-bath before they left the inner parting, a system which I advocated in 1901, and which has been carried out in a good many collieries since.

7671. With regard to ventilation, what do you say about the first General Rule. Is it adequate?—I think I would like the rule altered.

7672. In what way?—I would much like to see the rule altered, or added to, to make it illegal to carry on any work except what is necessary to improve the ventilation in any part of a seam where a cap is visible in the air current.

7673. We have had a good deal of evidence about caps, and difficulties have been suggested by Dr. Haldane, who has had a good deal of experience in the matter. One man will say there is a cap on the lamp, whereas another man will say there is none, and it is difficult to find out what you mean by a cap. He says he has been in mines where he has observed a cap on the lamp, but the man says he does not consider that means anything—that it is a mere nothing?—I think where we have a cap in the Cardiff district we generally agree that it is a cap.

7674. You think in your district there has been no difficulty in defining what a cap meant?—No.

7675. You think everybody has the same notion on the subject?—That would be so.

7676. You say a cap of any kind on a lamp ought to be sufficient. If you have a lamp fed with spirit, naphtha, the cap comes with a much less percentage of gas?—Yes, it does. I say if that lamp was used by the men, that should be the test.

7677. Do you think that the fireman, when he goes his round, ought to have a specially sensitive naphtha lamp?—No, I think the ordinary lamp is sufficient.

7678. With regard to the use of lamps in your district, do you think they are used enough?—We have only 5,617 persons working underground where naked lights are used; that is, speaking for 1905. We had 68,839 persons working in safety-lamp mines.

7679. Do you think that is satisfactory?—I do.

7680. You do not then suggest that the owners should be asked to make the use of safety-lamps more general?—I have one or two cases where I would like to see safety-lamps in, but generally Rule 8 is not strong enough to carry it through.

7681. You think that General Rule 8 is not strong enough?—No, I think it requires strengthening.

7682. How would you strengthen it?—It should make the use of safety-lamps compulsory in any seam in which anyone has been injured by an explosion of gas within the preceding nine or twelve months.

7683. Some inspectors have suggested that wherever you had any considerable trace of gas in a mine that safety-lamps ought for ever after to be used in that mine. You would not go as far as that?—No, not quite. We have one or two mines where they have burnt several men during the last twenty years, and, in fact, killed one or two, but whenever we go there we cannot find gas, so we could not make a case out.

7684. It is clear if a man has been killed by gas that there must have been gas?—There must have been gas.

7685. If you had a rule to say that whenever gas has appeared in a mine, that then safety-lamps should be always used, those accidents would not happen?—That would be so.

7686. You would be content, if gas had been found in a mine, for the next year or so, that safety-lamps should be used, and that if during that time there was no appearance of gas, then they might be discontinued?—No, I think once introduced they should remain.

7687. I thought you said you would have them only for a year. Do you think they should remain for ever after when once introduced?—Yes, I think so.

7688. How would you strengthen this Rule 8? How would you word it? Have you thought of that at all?—No, I have not thought of that.

7689. You would condemn the use of the screw locks?—Yes, I do.

7690. How about the system of testing types of safety-lamps. Do you think the types of safety-lamps in use in your district are good?—Some of them are not.

7691. If you had your way, certain types of safety-lamps would not be used which are in use?—They would not.

7692-3. Do you report to the Home Office what you consider to be an effective type of lamp?—No.

7694. Do you not think it well to do so?—I consider a defective type of lamp is one with one gauze only.

7695-6. Do you mean only one gauze, and another cap of gauze, or only one gauze altogether. Some lamps have a second gauze just over the top?—That increases the danger if anything. I mean two complete gauzes.

7697. There ought to be two complete gauzes, in your opinion?—Yes, but the gauzes should be flanged in that way (*indicating with a lamp*) in order to keep them in their place. I have here a gauze which caused an explosion of gas by being driven out. It had no protection at all to keep it in its place except this slight friction here.

7698. (*Mr. F. L. Davis.*) Do you mean that the lamp was damaged?—No, this lamp was handed by a lamp-man to a brattice-man, who went underground; he met the fireman, who told him that there was a sheet down at a certain spot, and an accumulation of gas. This man went to re-erect the sheet, and when he did so the gas came down on to his lamp, and fired. He put the lamp down and ran out. When the manager, and the under-manager, and others went in they found that the gauze was out of its place.

7699. With the force of the explosion?—Yes, with the force of the explosion. There is no doubt in my mind the lamp had been put on one of the cleaning brushes, and the gauze forced a good bit of the way out. Then the upward blow or force of the explosion had completed the thing, and it came out. If that gauze had been flanged at the bottom the accident could not have happened.

Digitized by Google

Mr. F. A. Gray.

28 Nov. 1906.

7700. (*Chairman.*) Are there any lamps in your district where it would be possible to have a lamp put up, and apparently all right, and yet have no gauze?—Yes, that could be done.

7701. Where I have been in Durham the lamps were made so that it is impossible for a lamp to be put together at all. It would not pull up unless the gauze was there?—We have some such lamps——

7702. Do you not think it would be an improvement if you had lamps of that kind so that it would be quite impossible that the gauze should be omitted?—In some of the collieries the collier has his lamp handed out with the bonnet not screwed home, and he is supposed to unscrew it, and examine the gauze himself. He takes it in that condition to the fireman who examines it, and if it is all right he screws the bonnet on, and it locks itself. In that case you could not send a lamp in with the gauze missing.

7703. You think that the question of types of lamps requires consideration, and you are not satisfied that all the safety lamps in your district are safety lamps which ought properly to be used?—I am not satisfied with all of them.

7704. Do you think that there ought to be some central office where types of lamps should be tested in the same way as explosives are tested?—I do, and placed in charge of, say, three inspectors of mines.

7705. In order that they should carry on these experiments?—Yes, let them be three senior inspectors.

7706. And report to the Home Office as to the type of lamp?—Yes; any lamp failing to pass the test laid down should not be allowed to be used.

7707. As regards shot-firing. Would you prohibit shot-firing during shifts?—I would, certainly.

7708. In all cases?—In all cases except in a few collieries where blasting of coal is bound to be done in the shift.

7709. Do you think in nearly every case it would be desirable to prohibit shot-firing in shifts whether shot-firing in coal or in rockstone?—With a few exceptions in my district I would prohibit shot-firing, especially in roof ripping. According to the replies to a circular letter sent out by me on the 23rd October last to twenty-nine owners of such mines as come under the dry, dusty, and gassy category, nearly the whole of them replied that the shots were fired between shifts. In a few collieries only do they fire in the shifts, and that is in coal. Shots in coal are not so dangerous as roof-ripping shots.

7710. How about the firing of a lot of shots at the same time? Would you prohibit that? Would you say that shots should only be fired one by one?—That is what we generally do, fire one by one.

7711. Sometimes there are a good many shots fired at the same time, and that has occasionally led to an accident?—That is not the practice in my district.

7712. Is there anything you would like to say about shot-firing besides, or about permitted explosives?—I think the permitted explosives have had a good effect.

7713. Would you make it compulsory on the men to get their explosives from the mine-owners?—I would. That is to prevent the non-permitted explosive getting into the mine.

7714. What about searching the men for explosives? Do the men prefer gunpowder, and take down gunpowder instead of a permitted explosive? Have you under your special rules any power to search the men?—It is generally made a practice to have a look into the man's explosive tins now and then to see what he has.

7715. Do the men object to being searched?—No.

7716. You have no difficulty in your district?—None whatever, and they do not object to being searched for matches or pipes, or anything else.

7717. As regards falls of roof, I think last year there were a considerable number of accidents due to that cause in your district?—There were sixty-one deaths last year.

7718. That is rather more than the average?—There were 53 in 1901, 67 in 1902, 80 in 1903, 64 in 1904, 61 in 1905, making a total of 325.

(*Chairman.*) That is a large number.

(*Mr. Smillie.*) 325 over what period?—The years 1901, 1902, 1903, 1904, and 1905.

7719. (*Chairman.*) What about the special rules for timbering in your district?—I do not see that they have produced any good effect.

7720. What do you think has been the matter with them?—For one thing, in the managers fixing too high a maximum.

7721. You think when the managers fix a maximum that the men consider it is all safe if that maximum is adhered to, and they do not consider it necessary to do anything further?—I am afraid it is something to that effect.

7722. Would you suggest to the employers that the maximum distance should be lessened, or have a more complete system of inspection; have, for instance, men whose special duty it was to put up props and go round, say, twice in a shift to see how props were getting on, or something of that sort?—The only remedy I can suggest is stricter discipline on the part of the officials. The supply of timber is always good, and I suggest that there should be more overmen employed in our collieries, who should do a lot of the work done now by the fireman, and so allow the fireman to devote the whole of his time to the working face and roads.

7723. That, I suppose, would to some extent increase the expense of working?—Slightly.

7724. (*Mr. F. L. Davis.*) Did you specify what kind of work you would have performed by the overmen which the fireman now does?—The overman should look after the coal going out and the repairs on the roads to be done, so that he could communicate with the night-shift man, and the keeping of time.

7725. (*Mr. Smillie.*) Your idea being that the fireman should be absolutely free to attend to ventilation and safety?—Safety at the face and in the stall roads.

7726. At the present time the fireman has other duties?—He has too many duties.

7727-8. If those to some extent were relieved it would leave him free to look after the discipline so far as safety was concerned?—Yes. Before we leave the subject of falls, I would like to give you a few facts. To illustrate the amount of squeeze some of our seams are subjected to, I give the following figures: At the face the height is 6 ft. 6 in., and 4 yards back it is reduced to 5 ft. 7 in. That is on the road. On another road it was 6 ft. 6 in. high at the face, and 5 yards back it was reduced to 4 ft. 9 in. In another case it was 7 ft. high at the face and it was 3 ft. 11 in. high 60 yards back. I think that will show you we are subject to a considerable squeeze.

7729. Would that squeeze be intensified by a system of watering?—No, the squeeze takes place near the face. Then as regards the cost of timber, at one large colliery working steam coal the timber cost—that is, the actual cost of the timber, not the cost of putting it up—1s. 3·32d. per ton on large coal, which would work out to 10·94d. per ton on gross. At a colliery working 60 per cent. of small the cost of timber has always been from 6d. to 7½d. per ton on gross output. I think those figures show that we have rather bad roofs.

7730. You think those falls of roof and ground might be diminished if it was the duty of the fireman to go round and see the timber was in its proper position?—I do think so.

7731. Have you anything more to say about falls?—I think we are rather handicapped in our coalfield, for this reason: in a district like Durham the colliers are born colliers, whereas in our district we develop the collieries so rapidly that we have to get our supply of labour from outside, from agricultural districts, and they come to us at eighteen or nineteen years of age, and we have to make them colliers then. The latter man cannot possibly be equal to the former, who is a born collier.

7732. Do you mean to say at eighteen or nineteen you cannot learn to be a collier?—Not as well as if you start at the age of thirteen.

7733. You do employ some boys in your colliery?—We have a great number, doing various duties.

Digitized by Google

7734. They are accustomed to looking on and seeing how it is done, are they not?

7735. (*Mr. Wm. Abraham.*) That is a point I have tried to bring forth here before?—We agree, do we not, Mr. Abraham?

(*Mr. Wm. Abraham.*) Yes, we do.

7736. (*Chairman.*) How are you going to do away with that?—It cannot be done. When we get developed to our full extent then the thing will cease.

7737. Then you will raise up a breed of colliers?—Yes, the supply will keep equal to the demand.

7738. Is there anything more you wish to say about the falls in the roof?—Falls of roof and side I have given a great deal of attention to, and so have my assistants; in fact, we are regularly at it. We come out a good deal worse in falls of roof than in anything else.

7739. That is on account of the natural difficulties of working?—Yes, and the thick seams. That is a natural difficulty, of course.

7740. Then will you come to the haulage accidents?—We have had 218 persons killed during the last five years.

7741. That is about the average?—That is pretty steady. We got it in 1903 down to 34 deaths.

7742. Riding on the gun was responsible for five deaths in 1905?—Riding on the gun is always responsible for a percentage of the accidents. One reason why our death rate is so high is the size of the tram, and the heavy load of coal it carries. If a man or lad gets under a tram there is very little hope for him, whereas in some other districts where they have 10cwt. tubs a tram does not do so much injury.

7743. Have you all the modern appliances for stopping runaway trams?—Yes, such as safety points, and stop blocks.

7744. In fact, you cannot suggest any improvement on the present system?—I do not think I can; the roads are large enough and well supplied with manholes and the speed at which the journeys travel is not excessive.

7745. I observe in your mines the manholes are whitewashed so that they can be easily seen?—Yes, but we have one case where the watering is done so well that we cannot keep the whitewash on.

7746. You prefer watering to whitewash?—I do. If you look through the list of accidents by haulage you find that here and there a man walks out until he meets the empty journey, or he walks in until he meets the full one, and gets run over. We have one or two cases where a man had been warned that the journey was coming after him, but he took no notice, and walked right on until the journey went over him. On that road there were plenty of manholes and plenty of width at the side. How we are to safeguard men who will do such things I do not know.

7747. (*Mr. Smillie.*) How would a distinct travelling road do?—That is a big question. That would put it right.

7748. (*Chairman.*) Would you have a compulsory 2ft. way between one side of the wagons and the side of the roadway?—I should say in most of our collieries we have a yard between the rail and the side, and manholes provided.

7749. If there is a yard between, how is it a man does not walk in the yard?—I never could make out, unless it is because the road is cleaner.

7750. He chooses to walk between the tram rails when he might walk in the yard?—Yes.

7751. You say as to ropes or chains breaking, "It should be made a rule at all collieries that all chains, shackles and shackle pins must be thoroughly annealed at stated times, as, by the constant jarring they are subjected to, they soon become quite crystallised, in which condition they are liable to break at any time." Do you think that is properly carried out in the collieries under your inspection?—In most of them. Where we find it is not carried out, we urge them to do it.

7752. Have you found any difficulty in getting them to do it?—No, I have not.

7753. Have you had many accidents lately from ropes breaking?—No, we have not.

7754. Do you know anything about the safety-catches that are sometimes used?—Do you mean to prevent the cage dropping to the bottom on the rope breaking?

Mr. F. A. Gray. 28 Nov, 1906.

7755. Yes?—I have read a good deal of them, but I have never seen one at work.

7756. Then you have no knowledge of them?—No, I have no knowledge of them, but so far as they have gone there is not one which has been successful, and I think in the condition they are now in there is a risk in using them. ✓

7757. With regard to the special rules, do you think the present mode of establishing them is a good one?—Yes, except I object to the time that it takes.

7758. Do you not think special rules might very well be established all over a district, and that it should not be necessary whenever a new mine is opened that you should get special rules established? Ought not the opening of the mine, if the circumstances are not peculiar, in a particular district, to subject that mine to the special rules?—It ought. The same rules are adopted now when a new colliery starts, but we have to go through the process of establishing them.

7759. Which takes a considerable time?—A fortnight at the colliery, and then they remain at the Home Office for forty days.

7760. As regards the method of establishing these rules, the method is different under the Coal Mines Act from what it is under the Factory Act. Under the Factory Act the Secretary of State is top of the tree, and he can do as he likes after hearing what everybody says. If he thinks it desirable that certain special rules should be framed, he can do so, but with regard to the Coal Mines Act, he cannot do that?—No.

7761. There must be arbitration. Do you think it desirable that there should be an arbitration, or that the Secretary of State should be empowered to act upon his own view?—No, I think that the rule should be agreed upon between the Secretary of State and owners and the workmen.

7762. Supposing they do not agree, you think there should be arbitration?—Yes.

7763. I am told that generally where the owners seek to establish some special rules they first of all put up the rules without consulting the men. The first the men know of the intention of the mineowners to establish a special rule is that they see the special rule put up for their approval?—I think in our part of the world we do differently; we generally have meetings with the owners and the miners' agents.

7764. Directly the owners have it in their minds at all, before they have settled the exact wording of the special rule or decided to promulgate a special rule they always call the men together and consult them?—So far it has been done. Is that not so, Mr. Abraham?

(*Mr. Wm. Abraham.*) I am not at liberty to be cross-examined.

(*Chairman.*) At any rate, that is Mr. Gray's view. If you do not agree with it you can say so.

(*Witness.*) I think we have always taken the miners' agents into consultation.

(*Mr. Wm. Abraham.*) At a certain stage. I do not think you are quite right as to the proceedings.

(*Witness.*) As to the beginning, perhaps my memory is wrong.

(*Mr. Wm. Abraham.*) The men's representatives in South Wales have nothing to complain of in there being a meeting of the owners, and indeed the inspectors, only when we have to resort to arbitration, then until lately we have had no status at all.

7765. (*Chairman.*) Do you think that the various special codes in the various districts might be consolidated, and that there might be fewer codes?—I hardly think that could be got to work.

7766. How many codes are there in your district?—Only one. I think in the case of the Southern District, the Swansea District and Cardiff District, the rules should certainly be the same.

7767. Do you think that there are many things which are now put in the Special Rules that might very well be put into an Act of Parliament and applied throughout the country?—Yes, I do; and I think that some of the Special Rules are not necessary. I think Special

Digitized by Google

Mr. F. A. Gray. 28 Nov. 1906.

Rule 16 says that the manager shall see that the 34th General Rule shall be observed. Then you can repeat that for every section or every general rule. I think those things should be left out.

(*Mr. Ratcliffe Ellis.*) How would you proceed against a manager for a breach of that particular rule?—Take him under the Act.

7768. The owner proceeded against?—The manager I was talking of.

7769. (*Chairman.*) It does not seem of much use to provide that the manager shall take care that the provisions of Rule 34 should be observed?—It might as well repeat that to every rule.

7770. If it is necessary to put that in with regard to one rule, is it not necessary to put it in with regard to all the rules? I suppose at the end, if it was thought desirable, you might say it shall be the duty of the manager to see that all the rules and regulations are attended to. Surely it is necessarily the duty of the manager to see to that?—Special Rules 7 and 8 both refer to general rules, that he must see that they are carried out. It might as well say he must see each one is carried out. It only makes the rules longer than they should be, or more of them. That goes on all through the book.

7771. (*Mr. Enoch Edwards.*) He is expected to see all rules are carried out?—Exactly. Here is 24: "He shall see that General Rules 8, sub-section (b), and 13 are carried out." I believe it exists all through the rules.

7772. (*Chairman.*) Some of those explanations may be to indicate to the manager and under-manager what their various duties are. They indicate that the manager has certain duties and that the under-manager has certain duties. There is always danger in calling special attention to a particular rule?—There is one thing I forgot to say. I would like the boring rule discussed—General Rule 13. We had an inundation at a colliery called Caradoc Vale in June last, by which four men lost their lives. The result of the coroner's inquest was manslaughter against the manager and the agent. Then the case was tried a few days after at the Porth Police Court, and they were committed for trial. The case was heard afterwards at the Assizes in Swansea—I fancy it was about the 1st August—and the Judge got it dismissed. He said that General Rule 13 was not plain, and he told the jury, in addressing them for the manager, not to let that rule weigh too heavily against him.

7773. What was his criticism on that rule? In what respect was it not plain?—To begin with, he said it meant two things, and he could not understand them. In this case the manager drove one place right into the water. He said he was relying upon his plan, which showed that he had 18 yards, but he was taking no precaution to carry out this rule.

7774. "The working approaching that place." It is rather vague as to what "approaching" means. A man may say, according to the plans, he ought to have been more than 40 yards?—According to his plan, he was only 18 yards.

7775. In that case I should have thought it was pretty clear he ought to have kept bore-holes?—I think Sir Brynmor Jones, when he reports upon the accident, will give you the exact words.

7776. We will not inquire further into that as yet. We will have the exact report. I shall ask you one or two questions on plans by and by. I will go on to take the investigation of mining accidents. At present the Secretary of State can, if he pleases, order a second investigation, but he is not obliged to do so, although the men are dissatisfied with the result of the first investigation. Would you suggest that there should be some appeal from his decision in some way, as there is with regard to his decision as to Special Rules, and that the matter should go to arbitration, or to a Judge? Supposing the men differ from the Home Office as to whether there should be a second investigation?—I do not know what to say about that.

7777. Has it ever come to your knowledge that a coroner's inquest has not brought out all the material facts with regard to an accident, and have you ever thought it would be desirable that there should be a second inquiry?—I have not come across a case.

7778. You have always been satisfied with the inquiry at the coroner's inquest?—I have been.

7779. (*Mr. Wm. Abraham.*) Even when they have found against your opinion?—They have not found against my opinion since the Albion Colliery Explosion Inquest in 1894.

7780. That is one, to start with?—Take that one. The jury did not agree with us in that case.

7781. (*Chairman.*) But all the facts were brought out?—Yes.

7782. You mean there would be no object in having a further investigation, because all the facts were brought out before the jury. They may have come to a wrong conclusion, but all the facts were brought out?—Yes.

7783. There would be nothing more to investigate?—There would be nothing more to investigate.

7784. You are satisfied with the system that obtains now at coroners' inquests?—Yes. If I were not satisfied in any one instance I would report to the Secretary of State and ask for a second inquiry.

7785. You have not done so yet?—I have not done so yet, but I would not hesitate to do so.

7786. As regards rescue work in your district, have you a rescue station?—No, we have not.

7787. Do you think there ought to be one in your district?—It all depends upon what is meant by a rescue station.

7788. What is your idea of a rescue station?—The idea set forward by people has been that there is to be a station in which there are specially trained men who are capable of going underground with the breathing apparatus on, but I must say at once that I do not believe in those apparatuses.

7789. Have you ever seen them at work?—I have.

7790. Your experience is not satisfactory?—No, I do not like them. I should not like to put one on.

7791. You would rather take your chance?—Yes. My idea after an explosion is to restore the ventilation as quickly as possible, because if you could get in with a breathing apparatus on to a man who is still alive, say, 1,000 yards over and under falls, what are you going to do to him?—You cannot give him any of your fresh air, and you cannot carry him out. My idea is that the proper thing is to carry fresh air or ventilation in with you, and then you stand a chance of saving life.

7792. If you had an instrument which would enable you not only to breathe, but to do work and exert yourself, in an atmosphere you could not live in otherwise, you might be useful for rescue work?—It would have to be a very small apparatus when you have to go through holes 2ft. square, and sometimes smaller. It would be useless if you have got to stoop or for laborious climbing.

7793. I think you have views with regard to underground intercommunication. I think the experience of the Courrieres disaster has led you to the conclusion that it would be well to have some compulsory limit to underground communications?—Yes; I have always held that view, years before the Courrieres explosion. I think it is a great mistake to join too many collieries together.

7794. At the same time, I suppose that the joining of collieries together underground increases the facilities for ventilation?—That is the main object.

7795. And sometimes facilities for rescue work, too. If you cannot get out of one you can get out of another. It is objectionable, other things being equal, to stop up any means of communication underground?—Yes, in that case it would be. In all our accidents we have never had any trouble in the shafts. The shafts are practically free of everything except the wire rope guides attached to the cages.

7796. If, by means of those wet zones, an explosion can be satisfactorily stopped just as much as it could be stopped by a physical obstacle, I should have thought the system of wet zones would have been better than a physical obstacle which might get in the way of rescue work?—There is no doubt, if the wet zone is thoroughly attended to, that would stop it.

7797. There would be nothing objectionable in underground intercommunication in that case?—No.

Digitized by Google

7798. But that is far from being the case at present?—That has to be regularly attended to.

7799. The watering of mines is not carried out at present to anything like the extent it ought to be?—That is my opinion.

7800. Do you know anything about this miners' disease of ankylostomiasis?—No, fortunately I have not had any experience of it.

7801. Do they provide sanitary conveniences in your pits?—No, they do not.

7802. With regard to the system of examination, do you know anything of the working of the Examination Board in your district; are you satisfied with it?—I am, except that it should be made stiffer.

7803. The examination should be made stiffer?—Yes.

7804. Do you mean that the paper work should be stiffer, or that it should be supplemented by *viva voce* examination?—Both should be made stiffer. I think examination papers for colliery managers should be applied to under-managers, and that there should be a stiffer set of questions set for the managers.

7805. You think that the under-managers should be levelled up to the managers and the managers levelled up still higher?—That is my opinion.

7806. Do you think that there should be eleven different boards of examiners for the twelve districts, the two Welsh districts being combined, or do you think you ought to have one examination for the whole country?—I do not think one examination for the whole country would do. I think one examination for, we will say, two adjoining districts would do where the conditions in those districts would be practically the same.

7807. Is it not a fact now that if a man sits and passes an examination in your district he can go to Durham or anywhere else and take up duties as manager or under-manager?—He can.

7808. That means your Welsh examination is considered sufficient qualification for a Durham mine. You do not consider that is right?—No, I consider it ought to be higher in our district than it is.

7809. A Durham man can come to Wales, or a Welshman go to Durham on either the Durham examination or the Welsh examination. Supposing there are eleven different examinations, and some of them we are told are easier than others, a man can deliberately go into the district where the examination is easiest, and having passed the examination he is free to work where he likes to get employment?—That is as it is now.

7810. Is that a satisfactory state of things?—No. The examinations should be made about equal all through.

7811. It has been suggested that there should be one general examination which would qualify a man everywhere—that is to say, that everybody should be obliged to pass a central examination wherever he wanted to work, but before setting to work in any particular district—say Wales, he must pass some further special examination—say a *viva voce* examination, to qualify him to work in that district?—That would be two examinations.

7812. Yes; first of all a man could be examined before a central board, and everybody should have the same examination, and everybody who has passed should be given some certificate that he has passed that examination, but if he goes to Wales and wants to work in a Welsh mine, then there should be a Welsh Board who could say, "It is true you have passed this examination, but we want to know whether you are sufficiently up in certain questions that concern the Welsh District particularly, and we shall further subject you to a *viva voce* examination," and unless he passes that he should not be allowed to exercise his calling in Wales?—I do not see how that would be an improvement.

7813. What would be your suggestion with regard to examinations?—I should practically leave them as they are.

7814. That is to say, allow a man who passed in Durham to go, without further question, into Welsh coal mines?—Yes.

(*Mr. Ratcliffe Ellis.*) If he could get a situation.

7815. (*Chairman.*) If he could get a situation, of course?—I do not think they should be restricted from doing so.

7816. (*Mr. Ratcliffe Ellis.*) He would not be appointed upon his certificate alone?—No.

(*Mr. Ratcliffe Ellis.*) They would want to know something about him.

7817. (*Chairman.*) You would not be in favour of having four or five examinations instead of eleven, as there are at present?—Take the Swansea and Cardiff and Southern Districts; I think they might have one examination.

7818. In the same way, probably, the other districts could be grouped together?—Districts where the conditions are similar.

7819. According to you you would allow, as is allowed now, a man to pass an examination at Durham, where the conditions are extremely dissimilar, and then come down to Wales, and he would not be required to have any further qualification?—Yes.

7820. You would not interfere with that system?—I do not think I would.

7821. (*Mr. William Abraham.*) Do you know the standard of the examination in the Bristol District for certificates for managers? Is it the same standard as in South Wales?—No, I do not think it is.

7822. Would you allow a man to be examined at Bristol?—Do you think it is wise he should be allowed to manage our fiery seams in South Wales?

7823. (*Mr. Ratcliffe Ellis.*) He would not be appointed merely because he has a certificate?—No.

7824. (*Mr. William Abraham.*) The question is, is having that certificate a sufficient proof of his capability to manage one of our fiery mines in South Wales?—In the Southern District they have quite as fiery mines, though not so many.

7825. Why is it that men having failed to pass their examinations at Cardiff go to Bristol and get through easily?—It should not be so.

7826. (*Chairman.*) It is the other way. East Scotland and Cardiff seem to be districts that pass more men than any other. Cardiff and Manchester passed a great number of men?—When I was going in for my examination I had serious thoughts of going to Edinburgh, because it was so much easier, but I thought it looked rather cowardly to desert one's own district.

7827. (*Mr. William Abraham.*) Did you go to Bristol?—No, I stayed at Cardiff.

7828. (*Mr. F. L. Davis.*) I take it a certificate from any district will not get any man a job?—No.

(*Mr. William Abraham.*) Does it qualify a man for a job?

(*Mr. F. L. Davis.*) No certificate qualifies a man for a job.

7829. (*Chairman.*) One certificate for a fiery mine and one for a non-fiery mine is suggested?—That would never work. Would not the whole matter be met if the examiners had a meeting annually or every two years, and decided the course to adopt to keep the standard pretty well even in the whole of the districts.

7830. You would still keep up four or five different examinations, but at the same time have a Central Board which would more or less supervise those?—I think that would get over the difficulty.

(*Mr. Smillie.*) Mr. Gray might tell us why one board would not be sufficient?

7831. (*Chairman.*) Yes. Why do you not think one board would be sufficient?—Because of the different conditions of the different districts, and the terms used.

7832. In the present state of things a man can get a certificate from any one of the eleven Boards, and the qualification is held to be sufficient to enable him to act in all the other districts. However, you do not seem to object to that.

7833. (*Mr. Smillie.*) The condition in one of the districts that you mention is quite as dissimilar as the difference between Scotland and Wales, or Durham and Wales. Is the condition between the central districts of Lanarkshire, which are fiery districts, and the east country, which are non-fiery districts, quite as

Digitized by Google

Mr. F. A. Gray. 8 Nov. 1906.

different as between Durham and Wales?—I should say so. I have had no experience of Scotland.

7834. There is a considerable difference between a fiery district in Wales and a non-fiery district in Wales?—Yes.

7835. (*Chairman.*) You think there ought to be four or five different examinations, but that they should be more or less under the supervision of some central body?—I think that would meet the case.

7836. With regard to certificates for managers of metalliferous mines, do you know anything about metalliferous mines?—Yes, but I have only a few metalliferous mines in my district.

7837. Do you think managers of metalliferous mines should be required to obtain certificates?—I think so.

7838. Do you think it is more difficult to secure proper supervision in metalliferous mines than in coal-mines?—Yes, it would be more difficult on account of the conditions of the mine.

7839. Supposing the certificates were given for metalliferous mines, do you think one certificate would do, or that the mines should be classified?—I think one certificate ought to do.

7840. With regard to experience in foreign mines, would you allow a person who had experience in foreign mines to be admitted to the examination in the same way as one who gains experience in English mines?—No, I should not.

7841. Why?—Because the men I have seen who come over to our country do not appear to be practical men.

7842. Perhaps you think they might obtain a certificate on the strength of having served underground for so many years, and have not really done so?—Yes, something of that sort.

7843. Your objection would be that it would be more difficult to find out whether a person had really fulfilled properly the conditions of working underground if he comes from abroad than if he had worked in England?—I think so.

7844. Supposing you had means of ascertaining that a man had been underground for the amount of time in foreign mines, would you consider there would be any objection to taking that experience and allowing him to sit for examination?—No.

7845. The mines where he has worked would give a certificate to say he had worked underground the requisite term of years, which would enable him to sit for an examination?—In that case I would agree.

7846. You would allow him to sit?—Yes.

7847-8. In the same way, would you allow underground work in colonial mines to qualify?—Yes, I think in the same way. I did not quite understand the questions at first.

7849. With regard to plans, what do you say as to the accuracy of the plans of the mines in your district?—I think, on the whole, they are fairly accurate—the new ones.

7850-1. What about the old ones?—I think a lot of them are inaccurate. I am afraid there are a good many old plans of abandoned mines in the Home Office that are inaccurate.

7852. Would there be any means of verifying those?—No. In my opinion a notice of the intention of abandonment should be given three months before, and not two months after, the abandonment.

7853. Notice of the intention of abandonment?—Yes, so as to give an opportunity of checking the plans. As it stands now, they need not give notice until the colliery has been at a standstill for two months. It might be full of water: then we cannot do anything.

7854. They ought to give notice that they only propose to work the colliery for three months longer?—Yes, that would be better. They do not determine such an important thing as that in ten minutes.

7855. Do you think it would be possible for mine-owners to say definitely that they intend to give up working a mine in three months?—I think so.

7856. They would give to the Home Office three months' notice, and the Home Office would take steps to ascertain the exact position of the workings of the mine by the plan?—They could if they thought that it was necessary, but in the other case you can do nothing except take the plans they supply you with.

7857. How about making it compulsory that these plans should be signed as correct by some person who had a competent qualification?—They are signed now.

7858. Not necessarily by a person having a qualification?—Yes, we generally see that the man who signs has the necessary qualification.

7859. Have you any statutory power to see to that? Supposing a mine-owner says "So-and-so did it for me; it is true he is not a surveyor, but he is a man in whom I have confidence," what would you say to that?—I do not know that we have any power to object.

7860. I do not know that you have, either?—He must supply an accurate copy.

7861. That only refers to the copy, I understand. An accurate copy must be made by some competent person, but the original plan can apparently be made by anybody?—Yes, but the original must be accurate.

7862. There is no qualification laid down for the men who make the plan?—As to that, I think the status of the surveyor should be very much improved. He should first of all have to pass a practical examination before he is allowed to make the plans of a colliery. I know surveyors who are fond of the work, and who would stick to it if better paid, instead of going in for management.

7863. Do you consider that no plan should be accepted as satisfactory to the Home Office unless it was signed by somebody who had passed a special examination to prove that he was expert in plan making?—I think if the surveyor had passed a practical examination in surveying he could sign as to the accuracy of the plan.

7864-5. A qualified surveyor should in every case sign the plan?—Yes.

7866. (*Mr. F. L. Davis.*) I think Mr. Gray used the words "practical examination"?—Yes.

7867-8. Do you mean the Surveyors' Institution's examination?—No.

7869. (*Chairman.*) You would not suggest a man should necessarily pass the examination of the Surveyors' Institution in order to make a plan?—No, I should have an examination similar to the colliery managers' examination, but devoted entirely to surveying.

7870. You would have a special form of examination, and anybody who passed that should be competent to make plans?—Yes, and I do not think anybody who has not that qualification should be allowed to make a plan.

7871. With regard to the abandonment of a mine, I am told that sometimes mines are not worked for more than twelve months, and yet the owners will not say they are abandoned. They will say it is possible they may continue working the mine. It has been suggested that where a mine has not been worked for twelve months it should be considered to be an abandoned mine—that is to say, wherever a mine is not worked for twelve months, whatever the owners might say about their intention of working it again, in such a case as that they should be compelled to deposit plans with the Home Office?—I think it would be a very good thing. I have a case or two now where they say "We have not abandoned the mine, but when we do we will send you in the plans."

7872. They have gone on for as much as a year saying that?—Yes, two years.

7873. Have you had any experience about sea workings?—None whatever. We have none.

7874. (*Mr. Cunynghame.*) As to Section 34, which seems to require that until a mine is abandoned a regular office shall be kept up at it, would it be possible for a man under Section 34 to virtually abandon his mine, and yet say he had not? Would it not be necessary to keep an office and a man there, or some people on the place? I have no information upon it, and I am asking you for information?—I do not think so.

7875. He has to keep at the office an accurate plan until he does abandon it. Do you think it would be sufficient to put plans in the office, lock it up, and leave the whole thing?—I am afraid that is done.

7876. I had been under the impression that they were bound to keep the office going if the mine was not abandoned?—I do not think so.

Digitized by Google

7877. That is a point to be looked into. As to communication of parts of collieries, there is an objection to communication of parts on the ground of danger of explosions going from one part to another?—Yes, there is.

7878. That is a danger which might be met to some extent by zone watering—I will not say to what extent?—That might be.

7879. There is another danger, however, that would not be met by zone watering. If there was an explosion in one part of the colliery, even though that explosion did not go across into the other parts, the afterdamp might poison everybody?—Yes, it might. There is that danger, and it is a very great danger.

7880. After an explosion has taken place it may be much more difficult to restore ventilation so as to enable rescue parties to go down where the mine is one enormous lot of shafts and galleries united, than in the case where there was no inter-communication?—It would have that effect; it would increase the difficulty very much indeed.

7881. You have read about Courrières?—Yes, I have.

7882. Speaking as an expert, would you agree that the difficulties and dangers of the rescues in that case were a great deal increased by the well-intentioned action of the French in uniting gallery after gallery and mine after mine? You are not able to speak definitely on that point?—No, I am not.

7883. (*Mr. Ratcliffe Ellis.*) I have listened to these questions about the examinations. There are three sets of questions given in the Inspectors' Reports, and one of the subjects for examination is surveying?—Yes.

7884. The Board in your district does not publish the questions?—No, we are not allowed to; the Board will not allow it.

7885. In the southern district there are seven questions on surveying. Are you familiar with those questions?—Yes, I expect I have seen them. There are in most districts—in all districts, I may say—questions on surveying.

7886. Is that the sort of examination that is in your mind?—I want a more extensive examination, and I want a practical demonstration of ability in surveying work. They should show they can make a survey, and correctly.

7887. Do you think there is such a grievance at the present time as to the existing plans as to make it necessary?—No; in my district I do not think that does exist. The only case that has come to my notice has been in Caradoc Vale, where they were 18 yards out.

7888. It was an old plan?—It was partly old and partly new.

7889. What age was the old part of it?—About 10 years old.

7890. That was incorrect?—Yes.

7891. So far as your district is concerned, you do not think the plans are so wrong now as to make it necessary that there should be any change in the way of qualifying a surveyor?—No, not as regards the plans at present, but I think the surveyor should be a more important person than he is.

7892. I suppose you find at some collieries they are good men?—In some collieries, yes. In most of our large collieries the surveying work is done very well.

7893. Not by people who pass examinations?—There are no such things in connection with coal mines.

7894. Without passing examinations?—Without passing examinations.

7895. Those men you are satisfied with now would not be better if they had passed examinations?—Probably not, but it will ensure our having proper men.

7896. If such an arrangement as that was recommended, you would advise service certificates to be granted?—To the existing surveyors. They would have certificates of service as the managers did in 1872.

7897. In your district is the royalty generally paid by the ton or the acre?—By the ton.

7898. You have had experience where it is paid by the acre?—Yes, in Lancashire.

7899. There the lessor's surveyor makes a plan as well as the lessee's surveyor?—Yes, I believe he does, but in South Wales I believe the colliery owners' plan is taken as correct.

7900. With reference to inspection by workmen, have you any reports with you that have been made to you by the workmen?—No, I have not.

7901. Have you noticed whether the pits where the workmen inspect are better managed than where they do not inspect?—No, I have not noticed that.

7902. Nor are you prepared to say whether the percentage of accidents is higher at one than at the other?—I have not looked into it.

7903. Or whether there is any difference whatever?—No, I could not say.

7904. Is a report sent to you of this examination if there is anything wrong?—Yes.

7905. Have you taken any action upon that?—Whenever we get one we go and see if the thing has been remedied.

7906. Do you find it has been remedied?—Generally.

7907. Are these examinations made by men employed at the colliery?—Mostly. I have only known a case or two in 20 years where it was otherwise.

7908. Was there anything special about that?—No, I do not know that there was any special reason for asking for outsiders to do it.

7909. In the case of discipline you say it is improving?—It is improving.

7910. Has it been the custom for some time in your district to prosecute and not to fine, or has there been a change made?—There has been a change made during the last three years.

7911. More prosecutions and less fining?—Yes.

7912. Do you consider that the improved discipline is due in any way to that?—No, I do not think it is.

7913. You do not think that has affected it?—No.

7914. What is your objection to fining for breaches of discipline?—I do not think it should be left to the colliery manager. You get one colliery manager who would be more severe than another. One manager might have a grudge against a man, and he may inflict a very heavy fine. I do not think he is the man to decide as to fines.

7915. You are aware that you could interfere with that?—I am aware of that.

7916. Is not that a sufficient check upon any extravagance of that sort?—It ought to be.

7917. You can prosecute a man if he puts an unreasonable fine on the collier?—I believe so.

7918. That is the object you had in view in examining these fines?—Yes.

7919. Where you have examined them you have not found anything to justify interference?—I have not found them excessive.

7920. Have you any reason to suppose that they are excessive where you have not had an opportunity of examining them?—I do not think they are.

7921. Your only objection is not that it affects discipline, but it might be an injustice to the man?—Yes, it might be. The great object of prosecution, I take it, is to get the case into the paper as a warning to others. It does not matter how small the fine is.

7922. Where the fine is inflicted it is advertised on the pithead, I think you said?—That only affects the one colliery, but when he gets his name and the offence in the "South Wales Daily News" and "The Western Mail," our two Cardiff papers, everybody sees it.

7923. Does that make any difference?—Yes.

7924. Does that make any difference to that man himself?—Yes, and to the others. It is the others we want to see it, to act as a deterrent.

7925. You think that it acts as a deterrent?—Yes, I do.

7926. To that extent it improves the discipline?—There is no doubt.

7927. With regard to inspection under General Rule 4, do you think it desirable that the inspections before the shift and during the shift should be made by the same person?—Before the shift?

7928. Yes!—And in the shift?

7929. Yes?—Certainly the same man should do it.

Digitized by Google

Mr. F. A. Gray.

28 Nov. 1906.

7930. What length of time would he have to spend in making an examination within two hours before the shift and twice during the shift?—He has to do it in my district within 2½ hours.

7931. Of the beginning of the shift?—Of the beginning of the shift. That would end at a little before 7. He would have to meet the men at 7. Then he could make two rounds of inspection easily in the day shift after that.

7932. What time would he go down the pit?—At half-past 4.

7933. What time would he come up from the pit?—In some cases they come up at half-past 4 to 5.

7934. I am taking the ordinary work of a fireman who is making an inspection within 2½ hours of the men going down, and two inspections during the time they are down?—Yes.

7935. What number of hours would he have to be engaged?—He is engaged now practically from 11 to 12 hours.

7936. He could not do it in less?—Yes, he could.

7937. How?—He could finish his first inspection at 7 o'clock, or a quarter to 7, and he could then have his breakfast, and then start on his second. He could finish his work by 2 o'clock.

7938. How long would you expect a man to go on working after his second inspection?—That would be met by another set of firemen who relieve this first man, but in our present system——

7939. I want your present system?—In the present system the man remains in the pit until it finishes.

7940. He would have to stop in till the shift came out?—Yes.

7941. That would necessitate his having to be in from 11 to 12 hours?—Yes. Saturdays and Mondays are shorter days.

7942. I want you to tell me about the new system to which you referred?—The new system is that the first lot of firemen go down at half-past 4 and come out at 2.

7943. Are there two working shifts at that colliery?—One of coal, and the night for repairing.

7944. Men go down before 7, I suppose?—Men go down about 7—6.30 to 7.

7945. What time do they come up?—They come up from 4 to 5.

7946. The first fireman goes down two hours before 7 o'clock?—2½ hours.

7947. And he makes his examination before the shift?—Yes.

7948. He makes an examination during the shift?—Yes.

7949. He comes out what time?—The same time as the colliers.

7950. Now?—Yes.

7951. In the new system?—At 2 o'clock.

7952. He has made one examination before the shift and one examination during the shift?—In the shift.

7953. Another fireman comes down, and he makes a second examination in the shift?—He would start his second examination at half-past 4.

7954. You told me a short time ago it was imperative that the same man should make the examination before the shift and two examinations during the shift?—This second man is in during the shift.

7955. It is not the man who was in during the second shift. You cannot carry out your system and have your old system, because you cannot have the same man making all three examinations?—Yes.

7956. I do not see it?—There is nothing to prevent it.

7957. I understood that there was a great deal to prevent it. I understood the second fireman went down to make the hours of the first fireman less?—Yes.

7958. The men themselves do not come out?—There is a double shift of firemen.

7959. A double shift of firemen does not mean the same fireman makes the examination?—He makes the first and the two others during the shift.

7960. What does the second fireman do?—He is there to take charge after the first goes out.

7961. Why have you two examinations made?—Not to leave the district without anybody in charge.

7962. The system is that this fireman goes down not to make any examination at all?—He goes down to examine for night men who come down at 7.

7963. To make that examination for the second shift?—Yes.

7964. Mr. Davis was not here when you mentioned this operation.

7965. That is the new system?—Yes.

7966. The fireman, I think you said, you wanted relieved of some of his duties?—Yes.

7967. Does that system relieve him?—No; I want more overmen put on.

7968. So far as that new system is concerned, that does not effect one of your objects, to relieve him of some of his duties?—No.

7969. Do you consider the fireman who comes up at 2 o'clock is not able to make a sufficient inspection?—He has finished his inspection.

7970. During the time he has been down. When he comes up at 2?—If he carries out the numerous duties he has to carry out, as now, he would not be able to make the two inspections.

7971. What are the duties he has to carry out now?—he has to see the coal is going out.

7972. In what way, exactly?—If the trams are getting short anywhere he has to go out and see why.

7973. Is that part of his job?—Yes. He has to keep the time of the men in the district; he has to see as to repairs back on the road, so as to be able to tell the night men where to go.

7974. That is part of his work?—I say that ought to be done by the overman.

7975. Have you any idea how many additional firemen would have to be put on in order to carry out the new system?—No, I have not.

7976. You have not thought of that?—No.

7977. Have you formed any idea as to the number of additional overmen that would have to be put in?—No.

7978. At any rate, it would be a great additional expense?—No, I do not think it would.

7979. (*Chairman.*) Why have additional firemen? If the fireman had some of his duties taken off he might make an extra inspection during the shift?—Yes, he might.

7980. (*Mr. Ratcliffe Ellis.*) He does as it is, under the new system?—Only one.

7981. No, under the new system the fireman who comes up at two o'clock has made three examinations?—No. I propose that he should do so.

(*Mr. Smillie*). Under this system he does not, because it is not necessary under the Statute.

7982. (*Mr. Ratcliffe Ellis.*) Under the new system still the man who comes up at two o'clock has made three examinations?—No, he makes two.

(*Chairman.*) I thought under the new system he made three.

(*Mr. Smillie.*) Under the system Mr. Gray proposes he would have to make three.

(*Mr. Enoch Edwards.*) He can do it by two o'clock.

7983. (*Mr. Smillie.*) It is not done now at that colliery you mentioned?—No.

7984. (*Chairman.*) Do I understand that a fireman could make these three inspections and come up at two o'clock if some part of his work was taken by overmen?—Yes.

7985. You think that could be done?—Yes.

7986. (*Mr. Ratcliffe Ellis.*) Then the fireman who goes down at two o'clock is there to make the examination before the shift of the next men?—Yes.

7987. That is the system at this colliery, and that is what you recommend for general adoption.

7988. (*Chairman.*) Mr. Gray recommends something more than that. I understand now the fireman only makes two inspections, and he thinks if part of his

Digitized by Google

duties was taken by the overman he might make three?—I think the fireman's work should be entirely confined to safety at the face and the roads adjoining.

7989. (*Mr. Ratcliffe Ellis.*) I see in your report at page 22 you say, as others do, that you receive a number of complaints anonymously very often?—Generally so.

7990. Those are inquired into?—Every one of them. I fancy I had twenty last year.

7991. You do not find any difficulty in hearing of anything that is wrong?—None whatever. All the men know even if they signed their names and gave their addresses it is as private as if it was never written.

7992. Then examinations are made, and you attend to it?—Always the next day, if possible.

7993. With reference to watering I understand you to say you would propose that the whole of the main roadways should be watered?—I do propose that.

7994. Is that in every mine or only in dry and dusty mines?—In every mine that comes under the Explosives in Coalmines Order.

7995. In the Explosives Order those mines are set out: "In all coal mines in which inflammable gas has been found within the previous three months in such quantity as to be indicative of danger, the use of any explosive, other than a permitted explosive as hereinafter defined, is absolutely prohibited in the seam or seams in which the gas has been found." "In all coal mines which are not naturally wet throughout, the use of any explosive, other than a permitted explosive as hereinafter defined, is absolutely prohibited in all roads, and in every dry and dusty part of the mine." In any mine falling within the description of either of those paragraphs you would say the main roadways should be watered?—I would.

7996. And that is the extent of your watering suggestion?—Yes, all main roads should be watered, and thoroughly watered.

7997. You know that under the Explosives Order a permitted explosive cannot be used "unless every part of the roof, floor, and sides of the main haulage road or intake, within a distance of 20 yards from the place where is is used, is, at the time of firing, thoroughly wet, either naturally or from the application of water thereto"?—Yes.

7998. You want to extend that?—I do. General Rule 12 prohibits that altogether.

7999. Prohibits what?—Firing a shot on a main intake.

8000. I was not speaking about firing a shot on a main intake. I was speaking about watering of the main haulage road?—I beg your pardon.

8001. As to the character of the mine you wish that regulation to apply to, you would apply it to the mines referred to in the Explosives Order?—Yes.

8002. In the Explosives Order there is already a provision that permitted explosives may be used. No explosive except a permitted explosive may be used unless there is this watering?—Exactly.

8003. Is this watering, as far as you would water, or would you water more than that? This is "unless every part of the roof, floor, and sides of the main haulage road or intake, within a distance of 20 yards from the place where it is used, is, at the time of firing, thoroughly wet, either naturally or from the application of water thereto." Would you extend the watering beyond that area?—Yes, I would.

8004-6. Would you extend the watering to all the main haulage roads of the pit?—Yes.

8007. What is the reason you give in support of that view?—If, when a shot is fired, a sudden liberation of gas takes place, it would very easily be sufficient to cross that length of watered road, raise the dust in front of it, and away it goes.

8008. That is the reason you have for extending the watered area?—Yes, that is the reason.

8009. What is the disadvantage of watering?—We find very little. It certainly makes the roof a little uneasy, and the floor. That is about all.

8010. In your experience as an experienced mining engineer is that the only disadvantage that occurs to you that would result from watering?—It is—the most important.

8011. The mines now are being worked at greater depths than they used to be?—Yes.

8012. Necessarily, because you have to go further for the coal?—Yes.

8013. Is it a fact in these deeper mines the heat is very much greater?—It is, very much.

8014. Have you considered what the effect of watering would be with reference to heat in these deeper mines; would it make the work more laborious for the men?—The greater amount of moisture in the air would make it more laborious for the men, but we do not water to that extent.

8015. Watering might be of such a character as to make it very much more laborious for the men?—I have not seen it so far.

8016. I am asking you as an expert?—Yes, it might, but hitherto I have not seen it.

8017-8. I am asking you for information. Do you suppose you could water in the deeper and hotter mines to the extent necessary to keep down the dust and not to such an extent as would very greatly increase the labour to the workmen?—Here I have a case. It is the Deep Navigation Colliery, which is over 700 yards deep. I fancy it is about 740 yards. They water very largely there. They have 27,988 yards of water pipe laid already, and they say shots are not fired in any place where there are not pipes laid. This also applies to hard headings as well as ordinary roads. The floor, roof, and sides are thoroughly watered for 30 yards each side of the shot, and the whole district is watered before the firing takes place. That is their rule. They water the whole mine.

8019. Do you think you could do sufficient watering or sufficient watering could be done to keep the dust safe and still not to such an extent as to become oppressive to the men who were working?—Yes, I think it could be done, and is done.

8020. Have you had any experience of attempts to remove dust instead of watering it?—Only by filling it out by shovel.

8021. Is that efficacious?—Yes, that reduces the quantity of dust, but you do not get rid of the whole of it. You would not do that unless you swept it up.

8022. You have had no experience of any arrangements for doing that?—No, I do not believe there is one capable of doing it.

8023. Do you think that such a quantity of dust goes down a pit that it would be desirable to see if it could be prevented going down?—Yes, in most cases there is a considerable quantity going down.

8024. You have not seen any appliances for keeping the dust in a chamber and preventing it going down?—No, I have not.

8025. Do you think the character of the tubs might be improved?—Yes, I think they could.

8026. That would lessen the dust?—There could be a door put on instead of a cross-bar or two cross-bars.

8027. Although these are expedients for lessening the quantity of dust there is nothing but watering that would prevent it?—Thorough watering gets over the difficulty.

8028. Nothing else will?—Nothing else will. I know a colliery that has wooden trams boxed in, and the first time I went to visit it I pronounced it the dustiest colliery I had ever seen. There the trams were completely closed in.

8029. Where the ponies are used and they tramp up the middle of the road and that dust gets mixed with the coal dust, that is much less explosive?—Naturally.

8030. Does it follow that where haulage is mechanical there is much more likely to be a large quantity of dust than where it is not?—That is so.

8031. With reference to General Rule 1, you have a rule which I think you read out, which you suggested should be substituted?—No, I said I would like it altered.

8032. You did make some suggestions for altering Rule No. 1?—Yes.

8033. What were they?—I should like to see General Rule 1 altered or added to to make it illegal to carry on any work, except what is necessary to improve the

Digitized by Google

Mr. F. A. Gray.

28 Nov. 1906.

ventilation, in any part of a seam where a cap is visible in the air current; that is to say, a cap shown on the flame of the lamp used by the men.

8034. Would it meet your views if General Rule 7 was amended in some such way as you are suggesting (that is the rule for the withdrawal of the men) so that the conditions under which the workmen should be withdrawn would be more definitely stated?—That might meet it.

8035. I want to point out the difference between these two rules. General Rule 1 is the rule under which a manager is fined for not having an adequate amount of ventilation. It might happen in some cases that it was impossible to prevent a cap in the lamp; he might have done everything he could, but he could not stop it?—He should stop it.

8036. He does as soon as he can, but still he is fined for having it there. If you have your alteration of General Rule 7 there would be no danger; the men would have to be brought out, and no work would go on where that cap existed. I suggest that General Rule 1 should remain as it is, and that your alteration should be made in General Rule 7?—You think altering it would weaken General Rule 1.

8037. There are many things to provide for except gas and ventilation?—Yes.

8038. That is the suggestion I make to you; that is the place it is to be put in if it is to be altered.

8039. (*Mr. Smillie.*) What did you mean by "He should stop it"—stop the mine until the cap is removed?—Yes.

(*Mr. Ratcliffe Ellis.*) Rule 7 would provide for that.

8040. (*Mr. Smillie.*) There is not an adequate amount of ventilation if there is a cap there?—That is what I say.

(*Mr. Ratcliffe Ellis.*) By General Rule 1 there may be a cap there and it may be impossible to prevent it.

(*Mr. Smillie.*) Then the man can be withdrawn.

(*Mr. Ratcliffe Ellis.*) Rule 7 is the rule to withdraw the men under.

8041. (*Mr. Ratcliffe Ellis.*) Now with regard to the subject of lamps, do you think General Rule 8 is not sufficiently strong?—No, I do not think it is.

8042. Will this rule meet with your view: "The manager shall see that locked safety lamps only are used in every coal seam of the mine to which the Special Rules apply in which an explosion of inflammable gas causing any personal injury whatever has occurred within the previous twelve months or in which within the same period such a quantity of inflammable gas has been found as to render the use of naked lights dangerous"?—That, I believe, is the Lancashire Rule.

8043. Yes?—Yes, that would meet the case.

8044. Do you find that a dangerous lamp is the result of defective construction or because it is not properly taken care of?—The result of defective construction.

8045-7. You think there are many of those in existence?—In addition to the danger from a defective gauze the glass is sometimes too thin. There was recently a fatal explosion in my district from a lamp glass being broken by a stone. I think glass should not be allowed in a safety lamp that is less than a quarter of an inch thick.

8048. The testing station you suggest you say should be under the direction of three inspectors?—Yes, I think so.

8049. Would you not associate with them some other persons?—The owners could have, say, three representatives.

8050. Do you think it necessary to say what the character of the testing should be? Is that not a matter which might be left to the Home Office? There are no representatives in the case of the test of explosives?—Yes, I believe there is a committee.

8051. It is a committee appointed by the Home Office. They do not carry out the tests?—No.

8052. Do you think it better to have inspectors than employers or workmen?—I think the testing should be in the hands of the inspectors.

8053. As to shot-firing between the shifts, you say generally you approve the prohibition of shot-firing except during shifts, but there are some exceptions. What are the exceptions?—Where it is absolutely necessary to fire in the coal, that is, where the coal has become hard.

8054. Is it absolutely necessary, where you have shot-firing in the coal, to say that it should be only between the shifts; for instance, where the collier fires his own shots?—That would be in a naked-light colliery.

8055. Wherever it is?—Let them continue as they do now. I am speaking of safety-lamp collieries.

8056. We are to take it that in a naked-light colliery you would not prohibit shot-firing except between shifts?—No, I would leave it exactly as it is now; each man fires his shot when he likes.

8057. In collieries where they have lamps would you make it a rule that there should be no shot-firing, except between shifts in the coal, even if the colliers fire their own shots?—We have not any cases of that sort. Where safety-lamps are used the shots are either fired by the fireman of the district or the appointed shotman.

8058. During the shifts?—Between the shifts. In the few places that we have where shots are fired in the shifts, that is in coal, they are fired by either the shotman or by the fireman, not by the men themselves.

8059. You appreciate the point that it would be an inconvenience to the collier, where he fires his own shots, whether safety-lamps were there or not?—They do not do so where safety-lamps are used.

8060. You think where safety-lamps are used there should be no shot-firing except between shifts?—I think so.

8061. Either in coal or in metal?—Either in coal or in metal; certainly not in metal. I have a greater objection to it in metal than in coal.

8062. Are you satisfied that it should not be allowed in coal?—I think in a few cases it could be allowed.

8063. What are the cases where you would permit it?—Where the coal could not be worked in any other way.

8064. Where an explosive was necessary to bring the coal down?—It should be allowed, but no ripping shots, because they are generally the shots that cause the harm.

8065. That is the distinction you make?—Yes.

8066. Are permitted explosives generally used in your district?—Yes, except in the open-light collieries which are naturally wet.

8067. What do you use there?—Compressed powder generally, or gelignite, or bobbinite.

8068-9. Do you fire with electricity?—Yes.

8070. Not much with fuses?—I should say wholly with electricity; that is, where safety-lamps are used.

8071. With reference to the timbering rules, do you think that the number of accidents could be reduced if the props were set nearer the face?—I do.

8072. Although the timbering rules require that the manager is to specify the maximum distance, the man himself has to see that the place is kept safe?—Yes.

8073. There is plenty of timber?—Yes, a good supply of timber.

8074. These accidents result from the negligence of the men?—Or from over-confidence in the roof where the roof is good. It is generally there we get fatal accidents.

8075. Do you agree that the man himself is the only person who can keep himself safe?—No.

8076. Who else can do it?—The official. He must enforce the rules.

8077. Can he be in the place constantly?—Not in one place.

8078. The man, when the official is not there, is the only person who can look at the roof and see if it is safe?—Yes, but it is part of the duty of the owners to see that it is made safe.

8079. There is a limit to the extent to which the owner can do that. Unless he has a man there the whole time he cannot do that?—Do you not increase the possibility of getting it better done by increasing the number of inspections by the fireman? That is what I want.

8080. Unless the fireman is in the place the whole time he cannot see that the men put up the timber

Digitized by Google

that is necessary?—The place does not change so rapidly as that.

8081. Do you think the man might be more kept up to his work with more frequent inspection?—Yes.

8082. That means more expense to the owner?—I think it would be trifling.

8083. All these men have to be paid their wages?—Yes, but where there is sufficient supervision I always think there is more work got out of the men.

8084. With the haulage accidents, do you suggest any additional rules that could be made beyond what exist now to prevent these accidents?—No, I think the rules are sufficient if attended to.

8085. You mean if carried out?—I think so.

8086. You have given instances where wen will go into danger when they are able to keep away?—I have had several cases.

8087. No amount of supervision can remedy that?—No.

8088. With reference to the Special Rules, do you say that they should be agreed to between the owners and the workmen and the inspector?—I think so.

8089. Or, failing agreement, that an arbitrator should decide it?—Yes.

8090-1. Have you in your mind any scheme by which that could be carried out?—I do not see why it could not be carried out.

8092. Have you any scheme in your mind?—Simply, when new rules are contemplated, we will say by the inspectors, that they should call a representative meeting of the owners and of the men and discuss the question.

8093. Would you provide that the inspector should not be allowed to submit any rule unless they had in the first place had such a meeting?—I would suggest that he should propose a rule to the owners' and miners' representatives.

8094. Before he can propose it at all he must invite a meeting?—That is the best way of getting the thing pulled through.

8095. Supposing they both, owners and miners, opposed it?—Then there is nothing to do but arbitrate.

8096. You say he must not go even further than that; it must be arbitrated upon?—Yes.

8097. I want to ask you about Section 52 of the Act which provides: "The owner, agent, or manager of every mine shall frame and transmit to the inspector of the district for approval by a Secretary of State special rules for the mine within three months after the commencement"—that is an obligation upon the owner. Would you say the owner shall not carry out that obligation until he has invited a meeting of the men?—No, I do not go so far as that.

8098. How far do you go in that direction?—I say if the owner proposes any new rule he should ask the inspector and the miners' agents what they think of that.

8099. Supposing they disagree, would you have it merely a debating society, and let the owner take his own way after that, or would you say it must stand there? Is not this a more practicable suggestion: that the proposal should be made as the Act requires, by the owner to the inspector as representing the Home Office, then that it should be advertised, and that anybody interested should be at liberty to object?—That would be by posting it at the mine as it is done now.

8100. Yes, and then anybody should be at liberty to object to it: that a specific provision should be put in that any person interested might object, the men or anybody else?—They have that power now.

8101. If they objected and did not agree, then go to arbitration?—Yes.

8102. What is the objection to that?—None.

8103. Why do you want to alter it?—I do not think I said I wanted to alter it.

8104. I understood there was to be some meeting called between the employers and the workmen by the Secretary of State?

(*Mr. Wm. Abraham.*) His suggestion was to expedite matters.

8105. (*Mr. Ratcliffe Ellis.*) I will ask you about that point. As far as the method goes, you see no objection to the method?—No.

8106. Without inviting the men's opinion or the inspector's opinion in the first place, the owner can propose a rule or not as he likes at the present time?—Yes.

8107. It is advertised to give anybody leave to object to it?—Yes.

8108. If you cannot agree on it afterwards it goes to arbitration?—Yes.

8109. With reference to arbitration, I suggest to you that two arbitrators and an umpire are not necessary at all, but that there should be one arbitrator, and that that arbitrator should be nominated by the Home Office, with a right to any person who does not like it to apply to the Courts to substitute somebody else. That would relieve a good deal of the cumbrous character of this arrangement?—Yes.

8110. The time might be shortened?—I should like the time shortened.

8111. There is no reason why it should not be shortened?—I do not know why it was fixed at 40 days.

8112. At the present time the Home Office need not have 40 days unless they want it; they can say at once "We agree" or "We disagree"?—Yes.

8113. So that even as it is this time could be shortened if the parties wished?—The reason the rules are kept in the Home Office 40 days, I think, is to give everybody time to protest against them.

8114. A good deal less than that might be sufficient?—I think so.

8115. There is no reason why that should not be altered. In principle you agree with what I have suggested?—Yes, I do.

8116. With reference to special rules applying to each district, you have only one set in your district?—Yes, only one set. I did have two when part of the old Monmouth district was handed over to me, but since then I have had only one.

8117. In practice when a new colliery is opened it is subject to the special rules of the district?—They always adopt them, but they go through the form of proposing them.

8118. You would suggest, and I do not think there would be a serious conflict of opinion about it, that the special rules in force in the district should apply automatically to any new colliery?—Yes.

8119. Leaving it to the owner, if he wanted an exception, to propose an exceptional rule?—Yes.

8120-1. You think that would be a simpler method?—Yes.

8122. Have you read the report of the Courrières disaster published by the Home Office?—Yes, I have.

8123. First of all, the conditions there are not very similar to anything you know of in this country, for instance, the great area of underground working?—We have not any such colliery or collieries here.

8124. Have you noticed what the percentage of accidents was at Courrières before this explosion?—Yes, but I cannot remember for the moment. I believe they were pretty low.

8125. That is from falls of roof?—Yes.

8126. And from explosions?—I do not know.

8127. Then I will not trouble you further with it. Are there any other conditions prevailing at Courrières which you think are not existing in our mines, and which contributed to the explosion or to the extent of it?—As far as I remember, one of their shafts were timbered, and the timbering was blown out and stopped the use of that shaft, but I would not like to say that that was so.

8128. You have not fully considered that?—No.

8129. I want to ask you about the certificates. Before a man is engaged as a manager his record and experience are considered?—Yes.

8130. He does not get a position merely because he has a certificate?—No.

8131. Would it be very likely that in a Welsh colliery a man from either Durham or Lancashire or Scotland would be appointed as a manager merely because he had the certificate?—Not unless he was properly qualified.

Digitized by Google

Mr. F. A. Gray. 28 Nov. 1906.

8132. That would be ascertained outside his certificate altogether?—Yes, from his late employers, and perhaps the previous ones.

8133-6. With reference to foreign qualifications, I think you said that you did not object to foreign experience being accepted?—Yes.

8137. (*Mr. Ratcliffe Ellis.*) Would you make it a qualification that a man should have an ambulance certificate?—It would be rather a good thing.

8138. Both in the first and second class?—Yes.

8139. You think there ought to be separate examinations in different districts?—Yes.

8140. In the second class examinations particularly there are terms which are used in one part of the kingdom which would not be understood in another?—In the first class, too.

8141. That is one of the reasons?—That is one of the reasons.

8142. (*Mr. Wm. Abraham.*) How many collieries have you in your district?—About 200 coalmines, varying from employing two men up to hundreds. There are twenty-one metalliferous mines in which there is very little work doing. Do you want full particulars?

8143. No, only the coalmines?—There are about 200.

8144. Mostly large and extensive mines?—No, we have rather a large number of small ones.

8145. How many assistants have you?—Two assistants.

8146. How frequently have inspections been made?—As frequently as possible.

8147. Is the inspection in your opinion sufficient?—I can give you the number for the last five years.

8148. I only want your opinion?—Yes, so far it has been.

8149. In your district?—Yes. I cannot speak for other districts.

8150. Do you think that the present staff is sufficient to do the work of inspection effectively, having regard to the dangerous character of the district?—It has been, so far.

8151. It has had to be; is that it?—If I had asked the Home Office for another man I believe I would have got him in a very short time.

8152. In your experience, if you had two or three practical men that have passed the certificate of competency, if you like, whom you could have under your supervision and send here and there, would that not make your staff of inspectors much more effective than it is now?—It would make inspection more frequent, but if inspection is made too frequent I think it would have a tendency to lighten the employer's responsibility, and cause him and his officials to wait until an inspector came to point out what was wrong, instead of themselves finding it out and putting it right.

8153. Does that equally apply to workmen's inspections?—Yes, I do not think they should be too frequent.

8154. Are you in favour of workmen's inspections?—Yes, I am, and always have been.

8155. Why?—Because I think it is a benefit.

8156. Making inspection once a month?—Yes; they need not make it at a stated time. It is better when it is irregular.

8157. You think that frequency of inspection is a benefit?—Yes, but it must not be too frequent.

8158. Supposing instead of every month, you had it every two months, would it be a benefit?—There is no doubt it would, because I must admit that they do their inspections very thoroughly.

8159. What number of men would you want to make the Government inspection as thorough as these men when they are doing their work?—I gave you one instance of Aberaman Colliery where seven gangs of men took a whole day.

8160. And everybody was benefited?—I never heard to the contrary.

8161. Even the manager felt satisfied?—He would feel relieved, of course, when he found his colliery well reported on.

8162. Why should he not feel the same when more frequent inspection was made by Government inspector?—I do not think a more frequent inspection would be good. You know pretty well that a common and regular question by a solicitor representing owners at an important inquest is "When was the inspector in your colliery last?"—trying to put the blame upon him or trying to attach blame to him. You have always heard that, have you not?

8163. In every case that we have of an explosion and an inquiry why is the report of the inspection by the men asked for?—The manager does that to see if it cannot do some good to protect himself. That is what it is for.

8164. To show the condition of the mine at a certain time?—Yes, that is what it is for.

8165-9. If you had another class of inspectors of the character I am trying to describe, would it not strengthen your position as an inspector, and tend to make inspection more effective?—I do not think I have thought that over sufficiently.

8170. You gave us one example of the result of plans not being correctly made?—Yes.

8171. Do you know of others?—I do not.

8172. Have you read of them?—Perhaps not in your immediate district. Do you remember Glenavon?—I was at that accident.

8173. Was that not a glaring case?—That was a case of a plan wrong.

8174. You agree with the necessity of having plans properly done?—Certainly; it is a very important matter.

8175. Did I understand you to say with regard to the discipline of a colliery that prosecution is a greater deterrent against a breach of the rules than fining?—I should say so, even if a man got off without a fine.

8176. What about the districts which our fireman have to examine and report upon? Is there a tendency to make the districts rather too large for them to do their work?—The tendency now is to reduce the districts. We are always making a point of that.

8177. Because you find them to be too large?—Yes, I remember an instance some years ago where a fireman had 120 places to examine.

8178. I think it is as well to get your opinion on the matter, but I do not want to go into detail. What is your opinion about working either large or small portions of a colliery partly with safety lamps and partly with naked lights?—Very bad. Wherever there are open lights there is a laxity of discipline, and that would be liable to croop into the safety lamps districts.

8179. Do not the rules want amending in that respect to make that impossible.

8180. (*Mr. Ratcliffe Ellis.*) That is provided for in the rule he approved. That is the Lancashire Rule.

8181. (*Mr. Wm. Abraham.*) You would have that made into a General Rule throughout the country?—This Lancashire Rule do you mean?

8182. Yes?—Yes.

8183. Would you have Rule 7 made more explicit with regard to withdrawing men?—To meet the case of a cap?

8184. For anything?—Yes, that was what Mr. Ellis suggested.

8185. Have you known cases where lives have been lost in consequence of men not being withdrawn when you thought they ought to have been withdrawn?—I have known a case where they refused to put in safety lamps, and there were men lost through it.

8186. I was coming to that. Which case was that?—That was Llest Colliery.

8187. Where the inspector recommended that safety lamps should have been put in?—Yes.

8188. And where the recommendation was neglected and not carried out?—It was neglected.

8189. And where an explosion occurred afterwards in consequence of that not being done?—Yes. My last note made at that place was I came to the conclusion that a good deal of gas was given off from the floor.

8190. Would you have given the inspector a greater power in a case like that other than what he has now?—I would.

8191. Is it not necessary with your experience (and there are other cases I can cite) that an inspector

Digitized by Google

should be able to say without consulting anybody, "Naked lights must not be used here; safety lamps must be used"?—I think he should have that power.

8192. Let us go back to the other point about withdrawing men. Do you remember a case where in your experience an explosion would not have happened or lives would not have been lost if men had been withdrawn?—Yes, I had forgotten that. That was a case. You refer now to Fochriw.

8193. Was the management of that colliery prior to that—I do not want to name any person—carried out upon right and safe lines?—We had been getting them to introduce safety lamps at that colliery for a long time, and they were doing it quietly. The colliery all its lifetime had been worked with open lights, and we brought forward the lamp question, and they said, "We will do it, but it will take a little time"; they had introduced safety lamps in the night-shift, and they were intending to put them in in the day-shift.

8194. Your recommendation and your instructions were carried out very slowly?—Yes. I take it, if I remember rightly, that it was on account of the objection the men had to the safety lamps.

8195. That is not the question. Was the verdict in that case satisfactory, in your opinion?—I do not remember it at present. It was in 1902, I think.

8196. There were eight lives lost?—Yes, I believe there were. I have it here if you want to know the exact number.

8197. That was in consequence of two things which should have been done, in your opinion?—Yes.

8198. Safety lamps should have been used prior to the explosion?—Yes.

8199. Was there a prosecution?—Yes. I insisted upon the firemen being prosecuted for not withdrawing the men.

8200-1. The two firemen?—Yes.

8202. What was the penalty?—It was small, I remember.

8203. It was £1 and costs?—It was somewhere about £1. I see that I say in my report: "In connection with the Fochriw explosion the two firemen, Griffith Davies and White, were prosecuted by the owner for a breach of General Rule 7, and were each fined £1 and 11s. costs."

8204. Did that in any way in your opinion meet such a case of neglect?—No.

8205. Would not the management be equally responsible for neglecting the natural precaution necessary?—In this case you could not attach anything to the management. They had provided safety lamps to work with, and they did not know of the existence of the fall on the engine-plane.

8206-7. They knew of your desire to have safety lamps?—Yes; Mr. Robson, who had been the inspector in charge, had had a good deal of correspondence with them, I believe.

8208. In a case where eight lives were lost two firemen were evidently negligent of their duty?—They did neglect their duty, undoubtedly.

8209. The management would have known if there was no Rule, General or Special, to meet that. Your advice ought to be carried out?—Yes, we never advise a thing unless we think it ought to be carried out, and unless we think it is desirable.

8210. What is the way to meet that case—to have the inspector's instructions carried out?—To give him more power, I suppose.

8211. Are you still of opinion that all the coroner's inquiries with which you have been concerned have been efficient?—Yes, or else, as I said before, I should have represented it to the Home Office, and they would have allowed a second inquiry at once.

8212. Is there no case in your own history where you disagreed with the jury?—Yes, there was the Albion case in 1894.

8213-4. You have given me that, but I want to bring your mind to another where the loss of life was not so great. Do you remember that sinking case. Have you your report there for 1905?—Yes, it is last year's report, page 12.

8215. Did you find out all the facts there?—I think we did find the whole of the facts, but they were very conflicting. One of the witnesses swore that he saw the charge man bring down two lighted torches, and all the rest swore that they did not see them.

8216-8. "The coroner, in summing up, said he did not think he had ever come across such wholesale perjury as he had heard that day. He then reviewed the evidence, and added that such a conflict of statements had never been experienced by him in any serious case, and it was very difficult to make up one's mind as to who was to blame. Mr. Gray's evidence was that naked lights must have caused the explosion, and he included an electric spark in that category." Did you not express an opinion that the electric spark had nothing to do with it?—I did.

8219. "The evidence of the banksman, however, was that the current had been switched off, thus rendering the electricity harmless"?—That is the fact on which I founded my opinion.

8220-1. How did you come to say that the electric spark was an element in your naked light?—An electric spark is a naked light. The coroner asked me if I included an electric spark in the naked light category, and I said "Yes," but not as causing this explosion.

8222. That does not appear here. Following that: "The jury returned a verdict to the effect that the victims met their death by falling débris, caused by an explosion of gas, ignited by a naked light, the cause of which there was not sufficient evidence to prove." In the face of that verdict will you say now the cause of the accident was found?—In my own mind it was found.

8223. Did you agree with this verdict?—You could not prove it.

8224. Did you agree with this verdict?—I did not think it could be proved.

8225. My point is this, that there are cases where this Court fails to find out the causes. I am not finding fault with the inspector at all?—If you had had five inquiries you could not have got further, because this man would swear that he saw naked lights, and a dozen others would swear naked lights were never there.

8226. Supposing you had there a Court something similar to the one which enquires into accidents at sea, conducted by experts with power to carry the prosecution home?—That would be another thing.

8227. Do you think that people there would dare to commit perjury?—I do not know as to that.

8228. Or do you think the probabilities are that you would get the truth out where it would fail to come out in a case where people knew it could not be carried further?—I do not think you would ever get to the bottom of that particular case. The man who swore the naked lights were taken down would swear it anywhere.

8229. Here is a case where for some reason or other up till to-day (and all this, of course, nobody grieves about more than the owners and managers of that colliery itself) the cause of that accident has not yet been found out—I mean the real cause?—And never will.

8230. "The coroner said that was an open verdict. He regretted that in cases where lives were lost underground they did not know for certain what the cause was, and thus were unable to prevent a repetition." Did you inform the Home Office of this verdict, and its consequences?—I am not quite sure whether I sent at the time a newspaper report of the inquiry.

8231. You told us if you thought the inquiry at an inquest was not sufficient, that you would ask the Home Secretary for a second inquiry?—I would, but in this case I did not think it was necessary, because I saw you could not get any further.

8232. With these cases before you of Fochriw and Llest and Abertwysswg, do you think now that a second Court would be far more effective, and is necessary to find out the real causes of these explosions, and to carry home a deterring effect. Take the Caradoc Vale case. Was there any man more distinct in his opinion that you that there was very gross negligence of the manager?—No, there was not, and where I think there is gross negligence I do not keep it to myself.

8233. You got a committal for manslaughter at the Petty Sessional Court?—Yes.

8234. But you failed at the Assizes?—Utterly.

Digitized by Google

Mr. F. A. Gray.

28 Nov. 1906.

8235. With all that in your mind do you think we want something stronger than we have now to bring these cases home to people who neglect their duty so grossly as you have experience of in your own district?—To take this last case——

8236. Will you answer my question?—There is no doubt where it is necessary a second inquiry would be a good thing.

8237. (*Mr. Enoch Edwards.*) I think you have made it clear that discipline is much better in your district than it used to be?—Yes.

8238. You are opposed to the principle of fining men in the colliery office?—I am inclined to be opposed to it.

8239. Your people in your district do not practice it much?—Large firms practice it very little, if at all.

8240. They prefer to take a man before the Court where he has an opportunity of proving he is guilty or otherwise?—Yes.

8241. Is there much of it done in your district?—I can give you the number.

8242. I do not want particularly the number?—There are about 120 prosecutions of workmen per annum. That is not a great number.

8243. Have you collieries which maintain a high discipline without going to the Court?—Yes, we have. 155 were prosecuted in 1901; in 1902. 95 were prosecuted; in 1903, 108; in 1904, 99; in 1905, 124.

8244. Have you means at hand of knowing whether they are the same men who are prosecuted twice over?—I could not tell you here. I should have to go through the reports of the prosecutions for years to tell you that, but I do not think it happens as a rule.

8245. You are quite clear that there are collieries which are keeping the discipline of the mines without prosecution at all?—We have a few.

8246. It is the most desirable thing if it can be done?—Yes.

8247. Dealing with the fireman, who, after all, is one of the most important persons in the pit?—He is most important.

8248. The fireman and the under-manager, who are in the pit always, are essentially very important people?—Yes.

8249. I gather from you that the firemen were working tweive hours a day?—Yes, from ten to twelve.

8250. I thought you said from 4.30?—4.30 to 4 and 4.30 to 5 o'clock, with the exception of two short days, Monday and Saturday.

8251. Do you not think that is rather an unreasonable length of time?—I do.

8252. A fireman is constantly travelling or moving about?—He is constantly exercising his brain, as it were.

8253. It comes a worrying business with him for twelve hours?—It is worrying business.

8254. In dealing with this question of timbering, I think you wanted to tell the Commission that you think firemen or some other officials should make more constant supervision of the working places?—That is my opinion.

8255. Mr. Ellis suggested to you it would be rather an expensive matter—that is the way it was put to you?—Yes.

8256. We are not dealing with the question of expense on this Commission; we are rather here to find out the cause of accidents and their remedy?—Yes.

8257. There were 60 people killed by falls of roof?—Sixty-one last year by falls of roof and sides.

8258. Most of them would be in the working places?—Many of them on the roads repairing.

8259. There would be a number of them in the working places?—Yes.

8260. I see it is about half. I will take it there are thirty old. I do not want to bring in the financial aspect of the matter too much, but in those cases of men killed at the face, the company would have to pay compensation?—Yes.

8261. Being colliers largely, they would average £150 each?—More.

8262. So that one death would be equal to the salary of a fireman or more?—Yes.

8263. You are satisfied if there was more supervision at the face there would be less accidents?—I am.

8264. Nearly all practical people will agree with you there?—You forget in your financial calculation the stoppage of the colliery for the day the man is killed is a serious item.

8265. I will leave that to Mr. Ellis to ask you about. I will give him something to pay additional firemen with. After all, it would be a question of economy for the company?—Yes.

8266. Colliery companies cannot be interested in killing men in these days?—I do not think they are.

8267. Your coal is got by contract largely?—Each man is really on contract, so much per ton, and so much for other work.

8268. So long as his wage depends on the coal he gets, the tendency is rather to get as much coal as possible?—That is his main object.

8269. Working under those conditions, it is in human nature that he may not be as careful about his timber?—Yes.

8270. If he was working on day wage, he would set more timber very likely?—Very probably.

8271. Do you think it is desirable that there should be more constant supervision at the face?—Yes, and the men made to pay more attention to the timbering to protect themselves.

8272. Constant supervision would bring that about?—Yes.

8273. And they have an ample margin of money to do it with?—Yes.

8274. I understood you to say you yourself would be saisfied with the present rules on boring?—Yes, I am quite satisfied with it, and I say it is easily understood. It was the Judge who was not satisfied with it.

8275. Do you think, taking into consideration that a lot of the old plans were inaccurate——?—There is no doubt they were.

8276. Having regard to the serious disasters we have—we had a serious one in Staffordshire a little while ago where a lot of lives were lost, and it was proved conclusively it was through a defective plan?—Yes.

8277. In the face of that, do you think the distance laid down sufficient?—Forty yards, do you mean?

8278. Yes?—Yes.

8279. You are assuming that there is 40 yards?—If there was only 20 you are still safe then.

8280. Suppose you have all round you bleeding in the face of the coal?—In that case the manager should increase the distance of his own accord.

8281-2. When approaching water they supply men with thick heavy clothes to wear?—Yes.

8283. It rather suggests danger?—Yes. In approaching a heavy quantity of water frequently the Burnside boring apparatus has been used, and 50 yards of hole put in, and then there cannot be any danger.

8284. With regard to the Boards for granting certificates, I do not think this matter was made quite clear. Mr. Abraham was trying to get to the bottom of it, and it was suggested that in the Bristol district the men might have passed who had not a practical knowledge?—Men from the Somerset part of the district.

8285. The examinations are in Bristol, I suppose?—Yes.

8286. And that men may attend there who have not had any experience?—In fiery mines?

8287. Yes?—I should say that would be so.

8288. Generally the practical experience is very much the same all over the country?—I think so.

8289. More or less the same experience?—Yes. The great difficulty is the different terms used.

8290. Now with regard to watering, a question was asked whether the tendency is not to raise the floor and create difficulties by over-watering?—It has that tendency, but we do not mind it.

8291. Does it create any fresh risks liable to lead to accidents?—No, I do not think so.

Digitized by Google

8292. Mr. Ellis put to you a question about shot-firing?—Yes.

8293. I understood you to say you would allow shot-firing when the coal was hard?—In the shift.

8294. All coal can be got without blasting?—Yes; it is simply a matter of expense. Talking about water preventing an explosion, in the Albion explosion in 1894 the flame never reached down Pantddu dip, where there were 40 men and two or three horses. If they had remained in their working places they would have been all alive, because we afterwards found the two horses alive.

8295. I gather from you that that was your objection to the system of extended working, such as in the Courrières mine, by linking one pit to another—the destruction to human life after an explosion of firedamp?—I do not like one colliery being linked to another.

8296. His Lordship suggested to you it had advantages in recovering men. Your reply is it has those advantages, but you are liable to a greater destruction of human life from afterdamp in the explosions?

8297. (*Mr. Wm. Abraham.*) Is it your opinion, with regard to the recent explosion at the Albion colliery, that the close proximity of the accident to a very damp place prevented the expanding of the explosion?—Yes, it was very local in its extent.

8298. In your opinion that is due to the watering? I understand there was a little swamp where it was wet?—The place was wet.

8299. That, in your opinion, prevented that explosion extending?—I think so.

8300. Was there sufficient gas there, had the place been dry, to send the explosion throughout the colliery? Yes, I should say there would be, if the colliery had been in the same condition that it was in in 1894.

8301. Are you satisfied as to what ignited the gas?—In this last case?

8302. Yes?—The lamp re-lighter.

8303. Was it the best kind, or was it a defective one in use?—It is the ordinary re-lighter.

8304. Had that particular one any defect beyond what all may have?—Most of them have the same defect.

8305. (*Mr. Ratcliffe Ellis.*) Was that an electric lighter?—Yes. What I mean is that if you do not put the lamp exactly on to the cup or saucer provided for it, it sparks. For instance, if you have got your lamp on like that (*indicating*), and catching on the edge *there*, you get a spark to the bottom of the lamp; with 10,000 volts you get about half an inch.

8306-7. (*Mr. Cunynghame.*) You do not mean to say anybody has a current of 10,000 volts for lamp-lighting?—Yes.

8308. (*Mr. Enoch Edwards.*) There was no open light?—No.

8309. There were no other likely cause than the one you suggest?—No, the lamps were perfect. It is true they were single gauze lamps, which I object to very strongly.

8310. (*Mr. F. L. Davis.*) With reference to engine-winding in your district, are you fairly free from accidents?—Yes, I think it is the best work done in the district.

8311. And the men are a very good class?—Very good men.

8312. Do you think it necessary that each should be certificated, or any alteration made in the class of men from whom they are selected?—I do not think you can improve matters with my men, at any rate.

8313. Do you know any difficulty which may arise in not obtaining the most efficient men to fill such a position?—Yes, I have heard of a difficulty where the Enginemen's Association, I believe it is called, have compelled the management to put the next man in order of service on to act as winding-engine man irrespective of his ability. That has been reported to me.

8314. I know of that case, too. Do you not think that is a very undesirable thing?—I think that is wrong. I think the manager should, as he is responsible, have the choosing of the winding-engine men.

8315. Do you, in the case you refer to, know that the Enginemen's Union threatened to bring out the whole of the men and stop the colliery unless their particular man, the next man in order, was selected as the winding-engine man?—I believe that was so.

Mr. F. A. Gray
28 Nov. 1906

8316. Do you know that the reason for changing the winding-engine man had been that there was an overwind?—Yes.

8317. The old engineman had been dismissed?—He had.

8318. The company were very anxious to get the very best man they possibly could. The Engineers' Union insisted upon their having one particular man, not allowing them to choose the best man they could?—That was so, as far as I remember now.

8319. And they had an overwind in the course of the first few days this man was there. Do you remember that?—I believe so. I think the manager is the man to select the winding-engine men.

8320. You see then the difficulty sometimes that owners have to contend with under the head of discipline?—I do.

8321. With regard to Mr. Abraham's point about the second inquiry. How would a second inquiry in the case he mentioned come to any other decision, or get at any other verdict than was given?—I say it could not, because the same statements would be made at the second inquiry as were made at the first, and the men would stick to them.

8322. Do you know that the owners, my company, have utterly failed to find out what the cause was?—Yes, I do know that.

8323. Any other inquiry, it seems to me, would have had the same result?—It would end in the same way.

8324. Do you believe in inspectors being highly skilled men?—I do.

8325. Do you think there is any advantage to be obtained by having two classes of inspectors?—What would you call two classes of inspectors?

8326. The present class and a class such as Mr. Abraham suggests. He asked you if you had three or four additional men under you to make more frequent inspections of the mine, as to whether it would be an advantage or not, in your opinion?—I think I told him I could not express an opinion upon it, did I not, or something to that effect.

8327. You did not think too frequent inspection was useful?—I think too frequent inspection is a mistake.

8328. Do you consider a manager's first-class certificate a sufficient qualification for an inspector?—Well, hardly, unless he can pass the other examination. I would not like the status, we will say, of the assistant inspectors reduced in any way. I mean I would not like an inferior man to be put on as an assistant.

8329. For this reason I would suggest to you that an assistant inspector ought to be sufficiently qualified to become eventually a chief inspector?—Exactly.

8330. If he were not of the right class of man, or sufficiently skilled, there could not be promotion.

8331. (*Chairman.*) If you had also a class of inspectors, men with less salary, that would not derogate from the dignity of the present assistant inspectors?—No.

8332. I understand Mr. Abraham's suggestion is to have four or five men of a distinct class with a smaller salary?—I am afraid there would be a lot of difficulty over it.

8333. (*Mr. Cunynghame.*) You are aware in France there is an official called the Controlleur des Mines, whose work corresponds to that description?—No, I do not know that.

8334. (*Mr. F. L. Davis.*) Under Rule 8 did I understand you to say you think the inspector should have absolute power to put in safety lamps?—I do.

8335. Do you think this is putting a great responsibility on the shoulders of the inspector?—Yes.

8336. Would you not like that responsibility rather to be taken by the Home Office instead of by yourself?—There would have to be a better rule framed to meet the case.

8337. You approved the Lancashire rule?—Yes.

8338. Would that not meet the case?—Yes, that would meet the case.

8339. There is another thing that occurred to me. Do you not think that any power of that kind would

Digitized by Google

Mr. F. A. Gray.

8 Nov. 1906.

make matters more uncomfortable between you and the management?—Probably.

8340. Where you had absolute power to say this must be done, or that must be done?—It very likely would.

8341. Do you not think you can do more by discussion and persuasion, and in a better way than if you had the power to say this or that must be done?—So far I have been able to do more by persuasion.

8342. Supposing you had the power and you did not exercise it, would not that be rather an unpleasant position for you?—I would be rather to blame.

8343. You do not want more responsibility?—I do not.

8344. Can you suggest any additional precautions other than those provided at the present day for shot-firing to make operations safer in your district?—I would like all the blasting done between the shifts, as I said before.

8345. You said that is the case?—That is the case in most collieries now in my district.

8346. From your experience in South Wales with the hard headings and strong roofs, do you believe blasting could be entirely dispensed with?—In some collieries it could be, but not in others; in some of our mines there is no blasting at all

8347. If blasting were entirely prohibited it would prevent the working of several seams of coal?—It would have that effect.

8348. Especially the thinner ones?—I do not look upon a coal shot as so dangerous as a roof-ripping shot.

8349. I was dealing with the roof-ripping shots. Do you know hydraulic wedges have been used for this purpose?—Yes; I gave the result in my 1905 Report of a hydaulic wedge.

8350. I was not here at the beginning of your evidence. I do not know whether you said anything about that to-day?—No.

8351. What is your opinion about it?—I think it is a very good thing, but the wedge that we have in the mines has not arrived at perfection yet.

8352. Is not the hole very big, and it has to be driven very deep?—That is the objection, 3 inches or 3⅛ in. in diameter; that is serious where the roof is pretty strong.

8354. There is a difficulty about driving wedges in some kinds of ground?—Yes, there is.

8355. Rock drills again: is there not a difficulty in certain kinds of ground?—Yes, they wedge. They get jambed, I mean.

8356. Is there not also a difficulty in getting the power to every part of the mine where this would be required, supposing you were doing without blasting altogether?—You can do your ripping entirely with the Champion channelling machine, which will bore the hole and will drive the wedge in. That is done at the Great Western Collieries now. There is not a shot fired in those three steam coal pits.

8357. Not a shot?—No.

8358. I was not here when you were dealing with the watering question this morning. Which, in your opinion, is the best system?—The hosepipe, the pipe laid along the side with uprights every 30 or 40 yards. Then a man comes in, attaches the hose to the first one, and waters out 20 or 30 yards, and waters in the same distance. Then he removes to the inner standpipe and waters out until he meets the part that has already been watered, and he can do roofs, sides and floor thoroughly.

8359. In your opinion that is better than the spray?—That is the best system I have seen so far. I gave this morning the result of enquiries as to watering: that was, we have 444,543 yards of pipe in for watering now. There have been nearly 188,835 yards of that put in since 1901.

8360. Have you any idea yourself, in my collieries, how many miles of pipes there are at the present time?—Yes.

8361. What do you say?—45,760 yards, of which 15,153 yards have been put in since 1901.

8362. I thought it was a little more, but it is somewhere near it. It is something like 25 miles.

8363-7. (*Mr. Cunynghame.*) Can we get the expense of this?—I can give you a statement of the cost of an installation for watering in actual use in a steam coal colliery.

	£	s.	d.
15,775 yards of 1½ in. diam. pipes	1,035	11	0
1½ in. cocks	21	10	0
Tee pieces	33	15	0
¾ taps	69	15	0
Labour: laying pipes	52	10	0
„ excavating	48	0	0
Hose for watering	12	10	10
	1,273	11	10

The cost of watering roads, and the maintenance of water-pipes works out about 20*l.* per ton of coal drawn.

8368. (*Mr. Cunynghame.*) That is a very favourable and cheap instance of watering. There are others which would be a good deal more expensive than that?—In that case I do not think it would exceed ½d.

8369. You are aware that the German watering does cost a good deal more?—I believe they go above 1d.

8370. You are aware of that?—Yes.

8371. (*Chairman.*) In Durham a rough estimate was made for Sir Lindsay Wood, and he seemed to think it would certainly be at least 1d. per ton?—Here is an actual case where there are nearly 16,000 yards of piping in.

8372. And it comes to one-fifth of a penny per ton?—Yes.

8373. (*Mr. Cunynghame.*) That is watering throughout?—Yes.

8374. Does that include the cost of the water and pumping?—No.

8375. That makes a real difference. It is fortunate I asked you that. If that is the original cost, that means ½d. per ton on a day's output or a year's output?—On the regular output, the constant output.

8376. Daily?—Daily.

8377. (*Mr. Smillie.*) It means yearly?—This is apart from capital expenditure. The capital expenditure was £1,273 11s.

8378. (*Mr. F. L. Davis.*) How do you arrive at this cost? Are they given you by particular collieries?—Yes.

8379. They have given you what they say it cost them in their particular collieries?—Exactly.

8380. What is your opinion with respect to patent watering tubs going with the journeys?—I do not care so very much about them for going in with the journeys, but they are good for horse roads, where the haulage is done by horses, or where there is going to be shot-firing.

8381. Do you yourself compare them with the pipes laid alongside for efficiency?—No.

8382. What system of watering can you suggest should be adopted beyond where the pipes could be taken?—I should suggest the use of a water-tram.

8383. That is really outside the main haulage roads?—Yes, there are some very well-constructed water-trams on the market.

8384. Do you consider the haulage roads are more dusty than the headings and the face roadways?—Yes.

8385. Except where blasting is required, do you consider it necessary to water the headings and face roadways?—I think it is better that the roadways should be watered. Do you refer now to where the horses are working inside of the rope haulage?

8386. Yes?—I think it would add to the safety of mining to do it.

8387. In steep inclines, where trams have to be spragged and worked by horses——?—It is dangerous then to water. It adds to the danger.

8388. You mean accidents from runaways?—Slipping.

8389. Is it safe to thoroughly water, in your opinion, roof, floor, and sides, in all the seams in South Wales?—It is practically done now.

8390. I have mentioned the 4ft. seam. Do you consider there it is safe to water thoroughly?—Into the face, do you mean? Back on the road it is.

Digitized by Google

8391-2. The roof is very bad?—It is not a good roof in most places.

8393. It has to be heavily timbered?—Yes, where it is heavily timbered you do not affect it very much. The first or second application might make it crumble a bit.

8394. When you come to the floor, that is very soft?—Most of our floors are rather liable to heave.

8395. In this seam there are 1ft. to 2ft. of soft rashings at the bottom?—Yes.

8396. I suggest to you if you water that thoroughly it becomes a considerable danger in pucking?—There is no danger in the actual pucking. It simply reduces the height.

8397. With your roof and your floor soft your squeeze becomes more difficult to deal with, does it not?—Yes, but still we water in the 4ft.

8398. I have no doubt there is watering there, but my question really was leading to this: in that particular seam, which we will take as one of the worst, the difficulty of thoroughly watering is greater than it is in some of the other seams?—There is no doubt about that; but the difficulty is not so great as to prevent watering.

8399. I did not put it as high as that?—I know.

8400. I believe you have expressed the opinion that arching a roadway for a distance of fifty yards——?—No, over 100 yards.

8401. And thoroughly watering, would prevent an explosion passing from one district to another?—That is my opinion.

8402. That is arching for 100 yards and keeping it damp?—Yes.

8403. You still think that?—Yes.

8404. (*Chairman.*) It does not prevent afterdamp from going through?—No, it does not.

8405. (*Mr. Smillie.*) I suppose you are fully acquainted with all the previous mining legislation passed with a view to life-saving underground. I mean historically. You have made yourself acquainted with it?—Yes.

8406. Have you ever known of any legislation which was proposed with the object of saving life which was not objected to on the ground of increased cost?—I think that has always been advanced.

8407. From the very earliest times that mining legislation was proposed?—I think so.

8408. Increased cost has been urged as a reason why it should not be done?—I believe it has always been so.

(*Mr. Cunynghame.*) Perhaps justly.

8409. (*Mr. Smillie.*) I suppose you think the chief interest of this Commission and of all mines inspectors is to save life, and to prevent accident, so far as the circumstances of the industry admit?—That is how I look upon it.

8410. Several of the points which I intended to deal with have already been dealt with by the other Commissioners. With regard to the dust going down the mine from the screening material at the pit-bank, the question was put whether you know of any method or means of preventing that dust going down, and your answer, I think, was the only thing was to remove the screening further away?—Yes, that is the effectual way of dealing with it.

8411. Have you ever thought of driving a dumb drift down the downcast shaft, closing up your downcast shaft and driving the dumb drift for 50 or 60 yards, as sometimes your upcast shaft is carried by the dumb drift?—No, I have never thought of it. Then you would have to close your downcast shaft at the top altogether.

8412. It has been suggested the distance the screening machinery lies from the downcast shaft would make it impossible to carry it out at some collieries?—We have some collieries where it would be very difficult on account of the narrowness of the valleys.

8413. It would require enormous cost in some cases to remove the screening machinery?—Yes.

8414. In some cases it might be possible to carry a dumb drift from a place where no dust could get down for your downcast shaft?—Yes, only you have an objectionable covering to that shaft.

8415. The upcast shafts are now covered?—Yes, but I do not like it.

8416. You do think the descent of dust into the mines is of sufficient importance to justify us discussing if anything could be done to prevent it?—Yes, I think it does justify discussion.

8417. You have had no difference of opinion with any managers in your district with regard to the cap shown on a safety lamp? You have had no difference of opinion as to when a cap did show on a safety lamp?—No, but sometimes they tell me it is not dangerous.

8418. In reply to a question you said you never had any difference of opinion as to a cap being present. Have you had a difference of opinion as to whether the cap shown was a dangerous one or not?—Yes.

8419. In your opinion it is very important the point at which a cap is dangerous. Your own opinion is that it is dangerous when there is any cap shown?—I think there should not be a cap at all.

8420. If a cap is shown that is a sign of danger?—Yes, it is a danger signal.

8421. Are you of opinion that when it is mutually agreed between the inspector and the management at a colliery that a cap is shown on a safety lamp, that is the time when the men should be removed out of the colliery as dangerous?—Yes, I generally do get them removed.

8422. Do you know in parts of South Wales there is very considerable difference of opinion upon that point?—Yes, there is.

8423. It was held at the MacLaren Colliery Inquiry that there was no doubt that a cap was shown?—Half an inch, I believe.

8424. It was held at the inquest by experts that that was not dangerous?—Yes.

8425. And did not justify the withdrawing of men out of the mine?—They did say so.

8426. The jury believed it?—Yes.

8427. That is important, because I want to refer to that at another time. You would prohibit shot-firing during shifts except in cases where coal-getting could not be carried on without it. You do not know of any case where coal could not be got without shot-firing?—No; but not at the price prevailing.

8428. There has been as hard coal got in years gone by as exists now without shot-firing?—Yes, and we have to blast it now.

8429. Permitted explosives, you say, should be supplied by the owner?—Yes.

8430. Workmen should not be entitled to purchase them, and take them in without knowledge of the owner, or without being supplied by the owner?—I think that the latter is the safer plan.

8431. Do you suggest they should be supplied free by the owner?—No, I could not do that.

8432. Is there any good reason why a miner should pay for the explosives to bring down the coal if he must buy it from the owner?—If he does not want to use the explosive he can rip with picks.

8433. I am not dealing with ripping. You suggest here where permitted explosives only are allowed, it should be compulsory that the owners should supply those, and that the workmen should purchase them directly from the owner?—That is to prevent any chance of him getting wrong explosives. ✓

8434. You would not go the length of saying the owners should supply all the explosives used in the mine free?—No.

8435. You have dealt to-day with unskilled men going into mines in Wales, the reason being that your mines have developed so rapidly that your supply of born colliers ——?—That is rather a funny way of putting it.

8435. That means born from collier parents?—Yes.

8437. The supply, because of your development there, could not keep up to the demand?—That is so.

8438. You have had inexperienced men—agricultural workmen, and others?—Who have had to be made into colliers or trained into colliery work at the age of 18 or 19.

8439. You could seldom make them as efficient as men brought up from boyhood?—That is what I said.

8440. You really feel that these men are a source of danger to themselves and to all those employed?—

Digitized by Google

Mr F. A. Gray.

28 Nov. 1906.

Particularly to themselves in connection with falls of roof.

8441. For want of previous experience and knowledge and early training?—Yes, he cannot possibly get the same knowledge instilled into him as the boy who starts as a door boy.

8442. You give that as a reason for a large number of accidents from falls of roof and sides?—I do.

8443. Is it any use my suggesting to you if those men did not understand the English or the Welsh language that their employment would be safer to themselves?—I do not exactly understand you.

8444. Supposing they did not understand the English language, the language in which the fireman and manager speak, do you think their employment would be safer? Could you conceive it possible that the employment of unskilled workmen under ground would be safer if they did not understand the English or Welsh language?—No, I could not. That is if I understand you rightly.

8445. You cannot conceive it would be possible that their employment would be safer?—Because he could not understand English or Welsh he would be safer underground than if he did? No, he would not be.

8446-7. If added to their want of skill was ignorance of the English language, do you think that would make employment safer?—It would make it more dangerous. You are supposing that they have not any skill of their own, and they have not any knowledge of the English or Welsh language. Do we understand each other?

8448. Yes, perfectly?—No. That would add to the risk.

8449. You think so?—Yes.

8450. Have you any foreign workmen at present employed in the mines under your charge?—We have a few Italians, I think, but not many.

8451. Do you know whether they have a knowledge of English?—They talk English, I believe. We have no Poles.

8452. I really wanted to know your opinion, as an experienced inspector, whether or not workmen who did not understand the English language if employed underground would be safer, and your answer to that is that you do not think so?—No, they would not be safer.

8453. From your own experience you do not know?—From my experience I do not know. I have had no experience with foreign workmen in England or Wales.

8454. With regard to accidents on haulage roads, are there many of your main haulage roads used as travelling roads?—All of them.

8455. Have you no special travelling roads provided in addition to the haulage roads?—No.

8456. Do you mean by haulage roads inclined planes in which the tubs are being conveyed along continuously?—Endless chains?

8457. Yes?—I do not think we have three in the district.

8458. The haulage roads which you must have referred to are roads in which trains of——?—Main and tail ropes.

8459. You say, generally speaking, there is a space of 3ft. along the side of those?—I should say there would be.

8460. In spite of that men walk on the haulage road and not on the 3ft.?—Yes.

8461. Is the 3ft. at the side provided for the purpose of travelling on?—No, all our roads are big roads.

8462. You mean wide roads?—Yes, wide and high.

8463. What would be the difficulty of making a main travelling road?—The expense of maintenance, which is very serious.

8464-5. With regard to Special Rules, you give a very strong opinion on the Special Rules, that the workmen and the employers and the Mines Inspectors should jointly consult with regard to any new or proposed Special Rule?—I think that is the better way.

8466. Do you think Special Rules are more likely to be carried out if the workmen have a voice in the framing of them?—I should think they would be.

8467. In answer to Mr. Ellis you stated that the owners of an individual colliery should have power to propose a Special Rule for that colliery and put it before the Home Office?—He has that power.

8468. You do not object to that?—No.

8469. Do you think that the workmen at that colliery should have equal rights?—Their attention will be drawn to the rule when it is posted up allowing them to make any objections.

8470. You say the owner of a colliery should be entitled to draft a Special Rule for his mine and send it to the Home Office?—Yes, he has that power.

8471. You do not object to that power?—No, I cannot.

8472. You think it is a good thing?—He is the man that is responsible.

8473. Do you think the workmen at the colliery should have the same power?—No, I do not.

8474. Who should be more concerned with safety underground, the employer who is never underground or the workman who is underground?—That is a difficult question to answer.

8475. Surely that is not a difficult question: who should be more concerned in safety underground, the men who risk their lives or the men who do not? You still think it is a difficult question to answer as to who should be more concerned?—Yes.

8476. You are not prepared to admit that the workmen whose lives are concerned underground should have the right to suggest Special Rules for their own safety?—No, I do not think so.

8477. So far as experience at inquests is concerned, all the facts have come out, and there is no necessity for any further inquiry so far as your own experience goes?—So far as my own experience of 20 years of inspection goes.

8478. Would you say the same thing about railway accidents, that nothing beyond the inquest should be held? There is an inquest held on all railway accidents?—Yes, there is, but it is a small matter.

8479. It is not the same as an inquest in a mining accident?—I do not think they go into the thing so fully, but I do not know.

8480. Are not inquests all over England and Wales for the same purpose?—Yes, to find but the cause of death.

8481. Under the same coroner?—Yes.

8482. Is it not a fact that at a coroner's inquest he has absolute power in his own Court?—Quite.

8483-4. Is it a fact that the coroner often refuses to permit questions to be put by representatives of the deceased or representatives of the Government?—Yes, I have been refused to put certain questions, which the coroner thought did not bear on the case, but not often.

8485. Under those circumstances, where the coroner has refused to allow you to put questions which may elicit certain facts, do you still think the coroner's inquest is a sufficient Court when a serious accident takes place?—So far as my knowledge extends backwards it has been.

8486. So far as your own knowledge is concerned you do not see any reason for any second inquiry in most cases?—No; or, as I have said before, I would have asked the Home Office for permission to have one held.

8487. You might have asked in vain?—No, I think they would have granted it at once.

8488-9. With regard to rescue work and explosions, I think your opinion, after a long experience, is that the first thing to do is to get the ventilation restored?—Yes, as quickly as possible.

8490. And carry any ventilation in with the rescue work?—Yes, and then you give the men inside a chance.

8491. When you find them you are in a position to deal with them?—Yes.

8492. Have you had any experience of reversible fans which could reverse the air currents in a few minutes in a colliery?—No, I have not.

8493. In your whole experience have you ever had an explosion where, had you been able to reverse absolutely the air current over the whole colliery, you might

Digitized by Google

have been able to save lives—I mean make the down cast the up cast?—No.

8494. So far as you know, there are no sanitary arrangements made in any of the mines in Wales for the workmen underground?—None that I know of.

8495. Would you suggest it would be a good thing if there were some sanitary arrangements made there?—If there were earth closets provided, but I do not believe in the sloppail business; it is too disagreeable to the men who have to change it or take it out.

8496. Some of your mines there are with a high temperatures?—Yes, 75 to 80 degrees.

8497. It is suggested with a temperature of from 70 to 80 that ankylostomiasis might propagate?—Our men generally relieve themselves in the old stalls that are cut off and that are in process of being filled up. Whatever was deposited there to-day would be covered up with coaldust and rubbish to-night, and I do not think you can beat that system.

8498. If it was thoroughly covered in?—Yes, it is because the place is being gobbed up or stowed up.

8499. Is that pretty universal in Welsh mines?—Yes.

8500. That removes the difficulty to a great extent?—Yes, it does. There is no deodoriser to equal earth or coaldust, or something of that sort.

8501. If it is covered in so that it cannot get out to the air again?—It is buried. In each of those stalls there would be a couple of yards of stowing put every night.

8502. This Commission naturally is more concerned with explosion than with almost any other question. Is it a fact that the majority of working-men employed underground have not a knowledge of the communication between one shaft and the other underground?—Yes, I should say that would be so.

8503. You say that 80 per cent. of the men employed in the various mines are ignorant of the communication between one shaft and the other?—I do not know about 80 per cent., but a very large number are.

8504. You would not care to fix a number?—No.

8505. Would you agree to have finger posts pointing the way to the communication to the upcast or downcast shafts or the escape shaft. They might be useful. I mean, if the downcast shaft is used chiefly for raising and lowering men and the communication was by the upcast shaft there might be finger-posts on the main roads pointing to the communication between the two, so that the workmen might find their way if anything took place?—That would be all very well if they retained their lights.

8506. You mean in an explosion?—Yes.

8507. But something else might go wrong besides an explosion?—A better plan would be to take the men out the second way every now and then.

8508. By persons who had experience?—Yes, by an official. Take them out by the second outlet once in two months.

8509. Would it be an expensive thing to put up finger-posts on the ground indicating the way to the communication?—I should say not.

8510. Is the communication between the upcast and downcast pit in Wales usually kept fairly well open so that men can walk through easily?—Yes.

8511. Very few falls between them?—Yes, no falls whatever; you can take a tram from the fact to the upcast bottom in most collieries.

8512. Do you know any in which there is a difficulty in getting from one to the other?—No.

8513. Have you any female labour about the surface of the mines in South Wales?—Not very many.

8514. You have few women?—Yes, and that few is getting less I believe.

8515. Are you favourable to the employment of female labour about mines?—I do not think it is work which is suitable for females.

8516-7. Are there any of your collieries dry and dusty at which naked lights are used?—No, they are principally damp—naturally damp, I mean.

8518. Could you conceive any collieries being dry and dusty in which there is no gas in which naked lights are used?—No, it is rather difficult to conceive that, that the one should be present without the other.

8519. That mines should be dry and dusty without the presence of gas?—Yes, you generally find the one accompanying the other.

8520. Would you take it that such a thing could be, that there may be a dry and dusty mine in which naked lights were used because of the absence of gas? I have worked in a mine you could scarcely see for dust which was a naked light mine?—I should say it is possible to get such a mine which would be dry and dusty and still use naked lights.

8521. Where gas had not been found in dangerous quantities?—Yes.

8522. In a case of that kind you would think watering was necessary?—I would.

8523. There would be a danger from blown-out shots?—That would be the principal danger.

8524. There is one point I want to ask you about on the qualification of workmen inspectors. You believe inspection by the workmen has led to some little good because it has made the men feel themselves that things are better?—It gives them more confidence.

8525. It has sometimes called the attention of the Mines Inspector to something being wrong?—Certainly.

8526. To that extent it perhaps has tended to safety?—Yes.

8527. Supposing it was proposed to have a lower grade of inspectors paid by the Government, inspectors who had been practical workmen, would you object to that?—Yes, I think I would. ✓

8528. You do not object to inspectors being appointed by the workmen so long as the workmen pay them?—I do not object to that.

8529. What difference would it make if the Government paid them?—I do not think it would do.

8530. Can you give us any good reason why the mere payment by the Government of inspectors would alter in any way the good that they would do?—No, I have not studied the question.

8531. Do you approve of the men appointed by the workmen under the present Act being practical working miners at the time of their appointment?—Yes, I do.

8532. Do you approve of their being employed in the mine which they are to inspect?—The rule gives them the option of employing men from other mines.

8533. So long as they are practical working miners at the time of their appointment?—That is so. Recently in the Swansea District, the two first cases we have ever had have arisen.

8534. I know it is being done in many places. You approve of them being practical working miners at the time of their appointment?—Yes. You would not send a haulier round to examine a colliery.

8535. A person who had been a practical working miner for twenty years and had given up working as a miner, would you say he should be objected to upon the ground that he was not then a working miner?—I do not think you could, could you?

8536. According to the law, yes. He must be a practical working miner at the time of his appointment. Do you know of any good reason for that?—Against him being employed?

8537. Against him being appointed because he was not at the time of his appointment working as a miner?—No, I do not see any reason against it or for it. Why go outside of the colliery, I say.

8538. Were you aware that that is the law, that he must be working as a miner at the time of his appointment?—I believe that is so.

8539. You are acquainted with Rule 39 with regard to the employment of unskilled workmen at the face?—Yes.

8540. I suppose you would agree with me that the employment of unskilled workmen at the coal face was at least dangerous to themselves?—Yes.

8541. If it were known to you that a Court had found that while it was a breach of General Rule 39 to engage one unskilled person at the coal face to work, that it was not a breach of that rule to engage ✓

Digitized by Google

Mr F. A. Gray. 28 Nov. 1906.

two unskilled persons to work together, do you think it is time that rule was altered?—I do. It is evading the rule.

8542. The rule says work alone, but when two unskilled persons are working together, they are not working alone?—That is not the spirit in which the rule was made; that is simply making the rule an absurdity.

8543. "No person not now employed as a coal or ironstone getter shall be allowed to work alone." The Court has held that if two unskilled persons are working together they are not alone?—It was never meant to be read in that fashion.

8544. Do you think it is carrying out the spirit of this rule if ten unskilled persons are working at the face to a coal contractor who is a skilled person?—No, he could not look after ten men safely.

8545. You do not think that is a wise thing or carrying out the rule?—No. Would you like to have ten men dependent upon you to prop?

8546. I would not indeed, but that is going on in some parts of the country?—That is only laughing at the rule.

8547. You pointed out that 14 men in one case were appointed to make an inspection at one colliery?—Yes, to do the work in one day.

8548. In order to get the whole inspection made in one day?—Yes.

8549. You say that that meant dividing into seven parties, and that seven officials were required to go with them?—Yes.

8550. The law does not provide for inspection being made in that way. The law provides that two persons shall be appointed?—Yes, but in my district whenever they suggest doing a thing of that sort they are generally allowed to do it.

8551. Do you think 14 men, seven couples, were necessary to inspect a mine in one day?—Yes; I believe in Mr. Hall's evidence he said it took two men 20 days.

8552. It took two men six weeks in one case, and he thought it might have been done in four weeks?—You must remember those men are not used to travelling like the official would be.

8553. You have 200 coal mines under your charge, employing from two up to hundreds of men?—Yes, we have several little ones, I know.

8554. Was this mine in which the 14 men were employed for a day examining a normal or an average mine?—It is a big mine.

8555-7. Would you say that it was twice as large as the average mine?—It depends upon what you call an average mine. The one I referred to employed 1,466 men, many of them, of course, at night.

8558. I suppose that would be twice as large as the average mine under your control?—No.

8559. 700 men would probably be the average number in those 200 mines?—No, several of the mines are larger than that. Here is one, 1,673, another 1,450, another 1,580, and here are 2,840 in one mine.

8560. 200 mines employing an average of 700 men gives you a very considerable number, does it not?—Yes, it does.

8561. If it took, say, six men, three couples, one day to examine an average mine, is it possible that you and your two assistants could examine 200 mines thoroughly in a year in addition to attending to accidents, inquests and complaints?

(*Mr. Cunynghame.*) Do you mean to go into every working place?

8562. (*Mr. Smillie.*) I mean as fully as those workmen would make their inspection?—Unless there is something very serious found in the condition of a mine a complete inspection such as they would make is seldom made. You take a district or two which you consider would be the most likely to be in a bad condition and you inspect that.

8563. You take that as a sample of a mine?—You take, say, two districts as an example.

8564. You report to the Home Office that you have made, it may be, 600 inspections?—I report to the Home Office exactly what has been done by me.

8565-6. Is it the case that you report that 600 or 400 or 300 inspections, as the case may be, have been made during the year by you or your assistants or each of them?—I report exactly what has been done.

8567. Is there any indication in that as to what those inspections really were?—Yes, I can give you an account of each one.

8568. Do you give that in your report?—No.

8569. Will you tell me now what you mean by an inspection?—I have just told you.

8570. That you may go to a section of a colliery?—Yes, you just take two or three firemen's districts, you examine them carefully, and you will first of all choose the districts which you naturally expect to be bad, and then if you find them in good order you consider the mine is safe. You would not go there looking for good districts.

8571. That is an inspection?—Yes.

8572. Supposing you attended at a mine where a fatal accident had taken place, and went to the place at the working face where that accident had taken place, is that returned in your report to the Home Office as an inspection?—No, not that alone.

8573. Is it not one of those that you make?—No, when we go to inspect the scene of an accident we always go through the district. We do not go straight and make inquiries and come back again. That would be an absolute waste of time.

8574. You go through two or three firemen's districts?—Yes.

8575. If you are called upon anonymously to a complaint?—We go through the thing thoroughly then.

8576. The whole colliery?—Yes.

8577. Or only what your attention is called to?—If what our attention is called to is unsatisfactory we make a minute examination of the whole colliery.

8578. That would be a full and thorough inspection of the colliery?—Of the whole of it.

8579. Can you tell us how many of those 200 mines were not inspected or examined in any way during last year?—Not inspected in any way?

8580. Yes?—There were not many, and they were small ones.

8581. Practically every mine under your charge was inspected either thoroughly or sectionally last year?—Yes. I do not think I have it here.

8582. Do you make any distinction between a thorough examination of a mine and an inspection of a mine?—No. Before we finish I should like to bring up the subject of drawing attention to the necessity of having all air crossings driven in the solid.

8583. (*Mr. Cunynghame.*) To prevent falls of roof?—To prevent the connection being made between the intake and the return. In the Albion explosion in 1894 there was a crossing blown out, and we afterwards found that 34 men had been alive there for some time, because, led by the fireman, they had gone practically over the district, but could not come out; and then in the Universal explosion a main crossing was blown out and gave no end of trouble. In that case we would not have got into the district for weeks unless we had reversed the air current.

8584. Do difficulties arise on the interpretation of checkweighing clauses?—No, we have no trouble with checkweighing.

8585. You are aware they are rather difficult to construe as at present drawn?—Yes.

8586. Do they provide in the Welsh collieries plenty of shelter for the checkweighers?—Yes, they do.

8587. Is it a place, speaking for the whole of South Wales, where a man not only can sit, but do his work in fair and reasonable comfort such as a man would expect?—Yes, they are generally so. The checkweigher is allowed exactly the same comfort and privilege as the owner's weigher.

Digitized by Google

FOURTEENTH DAY.

Thursday, 29th November 1906.

PRESENT:

Lord MONKSWELL (*Chairman*).
Sir LINDSAY WOOD, Bart.
WM. ABRAHAM, Esq., M.P. (Rhondda).
F. L. DAVIS, Esq.
ENOCH EDWARDS, Esq., M.P.
THOMAS RATCLIFFE ELLIS, Esq.
JOHN SCOTT HALDANE, Esq., F.R.S.
ROBERT SMILLIE, Esq.
S. W. HARRIS, Esq. (*Secretary*).

Mr. JOHN BOLAND ATKINSON, called and examined.

Mr. J. B Atkinson.

29 Nov. 1906

8588. (*Chairman.*) You are the Inspector of the Newcastle District?—Yes.

8589. How long have you been there?—Since July, 1902.

8589*. What was your previous experience?—I was thirteen years Chief Inspector for the East Scotland District, and thirteen years before that I was Assistant Inspector in the Newcastle District, and for about two years before that I was Assistant Inspector in the Durham District. I may say that I have been longer on the staff than any of the present inspectors.

8590. You have had experience in East Scotland, Durham, and in Newcastle?—Yes.

8591. Do you think it would be a good thing if the assistant inspectors were moved about more than they are at present from one district to another?—Within certain limits I think it would.

8592. Would you be inclined to think the Home Secretary might lay down a rule that except under special circumstances assistant inspectors should not remain more than five years in a district?—I should hardly go as far as that, because an assistant inspector might never, as it were, get to know his district.

8593. Five years would be too short a time?—Yes.

8594. It would be better to stay longer than that in a district?—Yes.

8595. On the whole, you are in favour of the occasional transfer of assistant inspectors?—Yes.

8596. When a man arrives at the position of principal inspector do you then think it desirable that he should remain in his district, or that he, after some considerable service, should be moved on to another district?—I think he should remain in his district.

8597. I understand that you have two assistants?—Three.

8598. With regard to your district, do you consider that you and three assistants are a sufficient staff to carry out your duties?—Yes. It depends upon the view you take as to the scope of the duties.

8599. Do you think you and three assistants can very well cope with the work?—My practice is to have every reported accident, whether fatal or non-fatal, investigated, and the place visited, to have every inquest attended, every complaint inquired into, and every mine inspected underground once a year, with only a few exceptions, and the spare time is devoted to general inspections underground and on the surface. Then there is the general routine work, such as correspondence, keeping lists of various kinds, inquiry into exemptions, inquiry as to the establishment of special rules, consultations with owners and workmen, annual reports, and special reports to the Home Office, comparing abandoned plans. We can get through all that work.

8600. With regard to inquests, what is your practice? Do you attend as many as you can yourself, or do you consider it immaterial whether you or your assistant inspectors attend them?—As a rule, I prefer that the assistant inspector who has investigated the accident should attend it, but there are cases where I should consider it necessary to attend.

8601. Your assistants attend more accidents than you do?—I attend an equal number.

8602. Where you know all about the circumstances you attend, and where they know all about the circumstances they attend?—Yes. I may say that one of the assistant inspectors, Mr. Leck, in Cumberland, has entirely to deal with quarries and metalliferous mines.

8603. You have two assistant inspectors for coal mines?—Yes. Mr. Leck attends the greater number of inquests on metalliferous mine accidents, but there are not a great many, and the two coal assistant inspectors and myself devote about equally our time to coal mine accidents.

8604. With regard to underground inspections, how many do you make as compared with your assistants?—I perhaps make half as many as they do.

8605. Between the three of you you take about an equal number?—I mean half as many as either of them individually.

8606. You take about one-fifth of the whole inspection?—I should say about that.

8607. If there was any question which arose as to the discipline of the colliery, or as to any special reason for investigation owing to a large number of fatal accidents, or anything of that sort, you would probably make a point of going down yourself?—Anything important I always attend to, and they attend as well very often.

8608. You have the usual £25 for correspondence?—Yes.

8609. Do you find that is enough?—I should say not.

8610. Do you think you spend more than £25 in correspondence?—It is rather difficult to say, but I have to keep an office, and my family are all constantly assisting me.

8611. Would you prefer that the Home Office should help you in getting up these statistics, that is to say, that you should send a rough table forming the basis of the statistics for your district, and that the Home Office should put them into shape, or would you rather the present practice should be continued, which is that you yourself are responsible for the statement of all the statistics in your district?—I think the inspector must be responsible.

8612. You would rather draw up the tables yourself?—We draw up the tables for the coal mine and metalliferous mines. The quarry returns are sent to us, and we look over them and send them to the Home Office, and they tabulate them.

8613. You do not tabulate them?—No, we do not tabulate them, but we are really responsible for them all. And inquiry is generally through us.

Digitized by Google

Mr. J. B. Atkinson.

29 Nov. 1906

8614. With regard to coal mines, you would prefer that the present system should be continued, and that you should be responsible for tabulating?—I think it is the only satisfactory system.

8615. I understand that you wish to say something to the Commission with regard to the age of retirement for inspectors. At present I believe the age is the same as otherwise in the Civil Service—that is, that you may be sent away without any reason or not after the age of sixty, or you may retire on your own account at the age of sixty, but you must retire at the age of sixty-five?—Yes.

8616. Do you think that there should be any improvement on that?—I think, considering the hard physical labour which is involved very often in an inspector doing his duty properly, he should be allowed to retire earlier if he finds himself unable to do the work.

8617. What age do you suggest?—I should suggest five years earlier.

8618. And get his full pension at the age of fifty-five?—The pension he is entitled to.

8619. For his years' service?—Yes.

8620. An inspector should be allowed to retire at the age of fifty-five if he pleases?—I should class mine inspectors much the same as the Army and the Police. It is a class of work that really requires men both mentally and physically capable. In one explosion that I had to do with, Usworth, I was assistant inspector at the time, I had to make twenty-three inspections before I had a full grasp of it.

8621. Do you think a man of over sixty would be inclined rather to shirk that work?—I think it is very probable.

8622. You think they ought to be allowed to retire if they please at the age of fifty-five; but would you give the Home Office any option of compelling a man to retire at that age?—I think I would give the same option to the Home Office.

8623. You would put the age at fifty-five instead of sixty?—Yes.

8624. Would you keep sixty-five as the maximum limit of age?—I think you might do that.

8625. Your notion is to substitute fifty-five instead of sixty?—Yes. Then there is another point in connection with that. There are now only twelve chief inspectors and twenty-six assistant inspectors, and the chance of promotion for these assistant inspectors is becoming very remote. I think anything that would help them forward a little ought also to be considered, and the somewhat earlier retirement on the part of the chiefs would have that effect.

8626. As a rule, do you find that the mines inspectors keep on up to the age of sixty?—Yes.

8627. And several of them up to the age of sixty-five?—Yes.

8628-9. With regard to General Rule 38, inspections by the men, is that much practised in your district?—Very largely in Durham and Northumberland; in the Durham portion of my district and in Northumberland, but not in Cumberland.

8630. What do you attribute the difference to?—It is rather hard to say. Where you have fairly strong Miners' Unions it is more likely to be carried out; but the Union is fairly strong in Cumberland.

8631. The Unions think it a safeguard, and ought to be done?—Where you have a Union you have men better organised and more likely to take advantage of a thing of that kind.

8632. The better organised the Union the more likely they are to insist on these inspections?—Yes, I think so.

8633. Do you find among the men any disinclination to pay money for the inspection? Do you think that has anything to do with the infrequency of the inspections?—I think it has in some cases in Durham and Northumberland. The money is not paid out of the central fund, but out of a local fund, and if that fund happens to get low they sometimes put off the inspections.

8634. Do you think that the miners choose the best men for these inspections? Are they the best men?—I should say very fair men.

8635. I understand they are usually paid the ordinary hewer's wage. Do you think that is sufficient, or do you think it is desirable that they should be more highly remunerated?—If they really do the work well, they certainly deserve a somewhat higher wage.

8636. They do not get it?—I do not think they get it.

8637. In your experience, where these inspections are carried out, are they carried out by competent men?—Yes, I think so.

8638. Do you find the discipline of the men is different where the workmen's inspections take place and where they do not take place? Do you find that accidents are fewer?—The discipline in Northumberland and Durham is certainly better than in Cumberland, and they have local inspections in the one and not in the other.

8639. You think that is, at all events, some indication that the inspection by the men does good with regard to discipline in the mine?—I think it does.

8640. Do you attach considerable importance to this inspection?—Yes; I think it is a very good thing, but it may be thought of more value than it really is. An undue importance should not be attached to it.

8641. Undue importance should not be attached to anything. The question is, what is undue? Do you think once a month is a reasonable interval to allow between these inspections?—Yes, I should say so.

8642. If these inspections take place once a month you think that is often enough?—As a rule, they do not take place anything like once a month—that is to say, a full inspection of a mine; but there might be an inspection of a particular part, or an inspection owing to a fatal accident.

8643-4. Something would be done once a month?—It is not often made so frequently.

8645. Every three or four months?—I think, probably, once in six months would be nearer the average.

8646. With regard to the discipline of the men in your district, how far is this enforced by prosecution and how far by fine?—Principally by fining.

8647. What is your opinion with regard to enforcing discipline?—Well, I think that the objection to fining is that there is not sufficient publicity.

8648. You think that discipline might be reasonably enforced in almost every case by means of fines as long as sufficient publicity was given to the fines?—Yes; but, of course, one would get the greatest amount of publicity when the case was taken before magistrates, because then it gets into the newspapers, and so on.

8649. Could you suggest any means by which equal publicity could be given to fines that are agreed upon with fines inflicted by a magistrate? Would you compel, for instance, the owners to advertise the fines in the local newspaper? Do you think that would be a good thing?—That would be all in the direction of increased publicity, and therefore good.

8650. I suppose there are serious offences where you consider a prosecution ought to be instituted instead of a fine?—Yes. I may say in the fiery Durham collieries, as regards matches and safety lamps, I think a prosecution almost invariably does follow an offence.

8651. You think it follows; but supposing it does not follow, you could find out by looking over the list of fines, which you have the right to inspect at the mine, that a man had been only fined for taking down matches into a fiery mine, or for some gross breach of discipline of that kind; and, if so, would you consider it necessary to remonstrate with the owners, and say the man ought to have been prosecuted, and not fined?—Probably I would.

8652. I should have thought that was a matter on which you would have formed an opinion?—I have not known the exact circumstances occur. A man may sometimes make a mistake.

6853. Supposing it was proved that the man had been cautioned before for taking down matches, and had done it a second time, would you not say it was then your duty to remonstrate with the owners, and say the man ought to be prosecuted?—Yes.

6854. You would have no difficulty in getting the owners to prosecute in such a case?—I think they would prosecute in such a case.

6855. You have never had occasion to fight it out with the owners, and to insist upon the owner prose-

Digitized by Google

cuting a man instead of fining?—No; I have often called attention to the desirability of public prosecution.

8656. You have never insisted upon any prosecution being made?—No. I do not hear of it very often until after it is over, and then it would be rather late.

8657. If you hear of a mine-owner having been content to fine men for gross and dangerous breaches of discipline, you would remonstrate with the owner?—Certainly.

8658. In the same way, if you find in the list of fines the mine-owner is in the habit of allowing persons to pay a fine for a gross breach of duty, you would consider it your duty to remonstrate with the owner?—Yes.

8659. You are aware, I suppose, that under Sections 50 and 51 Mine Inspectors would have the power to prosecute the mine-owners if they refused to prosecute a man in proper cases?—Yes; if they did not enforce the Act they would make themselves liable.

8660. If it was necessary to enforce the Act by prosecution, you could have up the mine-owners because they refused to prosecute. However, you have never done that?—I do not think that it has ever been done.

8661. At all events, I suggest you would have that power. You think, on the whole, discipline is fairly enforced in your district, and that there are a sufficient number of prosecutions by mine-owners?—The discipline is fairly well enforced, but I think that there should be more prosecutions and fewer fines. I think the number of fines that take place rather indicate of failure of the system of fining, and if they prosecuted more there might be more prosecutions for a few months, and after that the offences would largely cease.

8662. There seem to be a good many fewer prosecutions in Newcastle than there are in Durham?—There are not so many fiery mines in the Newcastle District as there are in the Durham District.

8663. At all events, I take it you are not quite satisfied with the way the discipline is enforced in your district, and you would like to see the system of prosecutions tried?—Yes, more prosecutions.

8664. With regard to the inspection by officials of the mine under Rule 4, do you think Rule 4 is adequate?—Yes; I have found the inspection by officials satisfactory except as regards shifts of repairers and stonemen, who go in at night. General Rule 4 says that the owners have to fix by Special Rule the time before the commencement of the shift within which the inspection shall be made. When I came to the district there was an accident that happened at Woodhorn Colliery. It happened before I came to the district; but the inquest was held after I came to the district, and I attended it. It came out at the inquest that the Special Rules only stipulated the time that is required by the General Rule for hewers' shifts, and not for these shifts of stonemen and repairers. In many of the Northumberland pits there are as many men in the mine during the repairing and stonework shift as during the hewers' shifts, and I have been trying to get that put right.

8665-6. They are not protected in the same way as the hewers?—I think the Act is infringed by the owners not specifying, as they are required by the General Rule, what should be the time before the commencement of the shift during which the examination should be made.

8667. (*Mr. Ratcliffe Ellis.*) Is there no provision in your Special Rules as to the time before the shift the inspection has to be made?

8668. (*Chairman.*) Special Rule 43 in the Northumberland District, under the head of Deputy, provides: "The foreshift deputies shall descend before the hewers, and each deputy shall within two hours before the hewers under his charge commence work, carefully examine, in accordance with General Rule 4, all the working places and all places situate beyond the station or flat in which workmen are to work or pass during that shift." That is entirely with reference to the hewers' shifts?—Quite so.

8669. Then the next Rule, No. 56, for Durham, is: "The foreshift deputy shall descend before the hewers, and each deputy shall within two hours before the hewers under his charge commence work, carefully inspect," and so on. You say, "It might be argued that the words 'each shift' in General Rule 4 refers to shifts of persons actually engaged in getting the mineral worked, and this view has apparently been taken by those who prepared the Special Rules as the time immediately before the commencement of each shift, during which the examination before commencing work has to be made is only specified for hewers' shifts, and no such limit is mentioned with reference to shifts of shifters, or other workmen, nor indeed do the Special Rules contain any reference to an examination before commencing work except for hewers." Your contention is not that the Special Rule is not sufficiently definite on this point, but that the General Rule has been infringed?—Yes.

8670. By the Special Rule only having reference to hewers?—That is my point.

8671. Therefore you would suggest that these Special Rules are illegal, inasmuch as they do not comply with General Rule 4?—Yes, quite.

8672. Upon that point there is no necessity to alter General Rule 4. You consider it sufficiently explicit as it is?—I find no fault with the rule if it is properly made use of.

8673. You say workmen should include other people besides hewers?—I think so. The Woodborn accident arose through some men going into the place with a naked light that had not been inspected. Since then, about the end of 1905, a similar accident occurred at North Seaton Colliery, where two men went in before the place had been examined.

8674. They were repairers, and not hewers?—They were going in for repairs.

8675. It has been suggested that there ought to be two inspections during a shift, instead of the one statutory inspection. What do you say to that?—I think two inspections ought to be made, and I think they are generally made.

8676. Would you be in favour of making two inspections compulsory under the Act of Parliament?—I think so.

8677. You would strengthen Rule 4 in that way?—Yes.

8678. Do you think these inspections by the firemen deputies, and so on, are sufficiently full and complete?—Yes, in Durham and Northumberland they are, because the men have not, as a rule, a very large district to inspect. The system in Durham and Northumberland is that the deputy does a lot of work in the shape of timbering, and follows on an average from fourteen to sixteen men. It does not take long to go round these places before the men come in, and afterwards he spends perhaps half an hour in each place.

8679. So that he has time to look round to perform his work thoroughly and well?—Yes, I think so.

8680. I understand, with regard to accidents, you would like to say something about this Wingate explosion. The report is not yet out, but if there is any special point you wish to bring before the Commissioners, we should like to hear what you have to say about it?—I think perhaps it would be better to wait until the report is out, and then if any question arose——

(*Mr. William Abraham.*) How are we to question the witness?

8681. (*Chairman.*) I suppose, if we are not satisfied with the report, we can easily have the person who signed the report before us, and ask him questions?—I think the report ought to be out in perhaps a month or six weeks.

8682. It may be desirable to have the person responsible for the report before us. With regard to accidents from explosions last year, there were three deaths and eleven persons injured. I may take it then that the accidents from explosion during the last three years have been, so to speak, fairly steady?—It has been fairly low.

8683. Fairly low and fairly steady. What precautions could be taken, further than those already taken, to prevent accidents from explosions? For instance, what do you say as to watering?—I think that all the main haulage roads ought to be kept sufficiently free from coal dust to prevent the propagation of an explosion along them.

Digitized by Google

Mr. J. B. Atkinson.

29 Nov. 1906.

8684. Could that be done in your district?—Yes.

8685. On the whole of the main haulage roads?—Yes.

8686. It would mean that some part of those roads should be arched by brickwork?—That might be so. I would prefer to put it rather as the removal or prevention of the accumulation of coal dust on main roads than say how it should be done.

8687. It need not necessarily be by watering?—No.

8688. The coal dust might be taken out?—It should be arrested at the source.

8689. It might be taken out by mechanical means?—The dust should be arrested at the source. We know what the three sources of dust are—from the screens on the surface, from tubs in the shaft, and from the tubs being drawn along the haulage road.

8690. Do you think anything much could be done in the way of preventing the dust coming down from the screens?—Yes, a great deal.

8691. One way would be to spray the shaft so that the dust would go through the spray and fall down?—Yes, that does as a matter of fact arrest a very large quantity of dust that gets into the shaft.

8692. In every colliery the circumstances of the case must be considered, and somehow or other the mines must be made reasonably free from dust, whether by watering or by other means?—Yes.

8693. Supposing, for instance, you had an efficient system of watering, that watering might do without any other means. It would not be necessary to be particular as to the tubs if the watering was carried out?—So long as you have an absence of dust. You might let the dust come there, and deal with it after it came there.

8694. Would you consider it necessary to water the whole of the haulage roads, or do you consider that the dust would be sufficiently laid by means of having what are called wet zones—that is to say, part of the road watered very freely, and the rest not watered at all, or only very slightly watered?—Yes, if the length of dust-free space that is necessary in order to arrest an explosion was determined, that would be a great source of safety.

8695. It is held that 100 yards would be sufficient, but it has been pointed out, that although it might prevent the explosion from spreading, it would not prevent the after-damp?—No.

8696. So that people might be suffocated in the after-damp, even if it did not spread?—In the Wingate explosion the explosion did not extend into the upper seams, but seven lives were lost there through after-damp ascending a subsidiary shaft. It was also arrested from the lower seam, which is the dustiest seam of all, by about 43 fathoms of shaft free from dust—86 yards it would be.

8697. It was sufficient to arrest the explosion?—It did stop it.

8698. An explosion is one thing and after-damp is another. You cannot prevent the after-damp except by mechanical means?—Yes.

8699. (*Mr. F. L. Davis.*) Will you tell us why did that shaft arrest it?—Because it was damp.

8700. (*Chairman.*) Have you any more to say about watering? It is a subject we are going into very fully?—I think I have already said that I prefer not to specify too particularly how the dust is to be dealt with, but rather to say what should be done. If the main haulage roads of a colliery were kept free from coal dust any explosion that happened would probably be limited to one district, and would not communicate itself to other districts of the mine, as these extensive explosions so often do. We have some watering of the floor. We have the Kirkup spraying tub in use in one or two mines. There is no system of pipes, except at Whitehaven on one of the main haulage roads. The means of dealing with the coal dust, you may say, are watering by pipes or by travelling spraying tubs, and then there is watering the sets at the landing before they leave. That is tried at some collieries.

8701. In your opinion, are the mines in your district sufficiently watered, or the dust sufficiently laid?—No.

8702. You have called the attention of the owners to that?—I always call attention to it.

8703. Do you find some difficulty in getting them to water the mines sufficiently or lay the dust in any other way?—Yes; we have no power in the matter. I tell them watering the bottom is no use.

8704. It is the side and roof?—It is the sides and roofs that contain the dangerous dust.

8705. It is more important to water the side and roof than to water the floor?—Yes.

8706. You would like to have more powers to enforce watering in your district?—Not to enforce watering so much as to enforce removal or prevention of dust.

8707. Do you report to the Home Office every year that you consider all these mines are insufficiently freed from dust?—I do not know about every year, but I have called attention to it both in private reports and publicly.

8708. What happens—nothing?—We have further inquiries into the matter. The subject is a new one, and requires to be thrashed out a little; and perhaps one great difficulty is that the public and miners have not appreciated the matter.

8709. The miners do not appreciate it themselves?—I do not think the miners do. For instance, in my local inspectors' reports I never find that they refer to dust on intake airways.

8710. Do the miners never complain of the mines being dusty?—I have never found once that I can recollect the miners referring to the intake airways being dusty.

8711-2. Under Rule 38 you mean?—Reports under Rule 38.

8713. You do not get support from either the owners or the miners?—I find the owners are taking the matter up fairly well.

8714. The owners are being gradually educated, and also the miners?—There has been a movement of late years.

8715. (*Mr. Wm. Abraham.*) Have you any objection from miners to mines being watered?—No; no objection.

8716. (*Chairman.*) They do not appear to consider it a matter of great importance?—They do not call attention to it, and if they realised the importance of it, I am pretty certain they would do so.

8717. (*Mr. Wm. Abraham.*) That does not give any proof they are against it?—I do not think they are against it. I think they are indifferent.

8718-9. (*Mr. Smillie.*) Would it be fair to say you have the opposition of the miners to your ideas?—Apathy would be a better word.

8720. (*Chairman.*) Both parties want the subject thoroughly investigated. I think it comes to that. With regard to your first General Rule as to ventilation, do you think that is sufficiently explicit?—I cannot say I have had any special difficulty in the Newcastle district as regards ventilation.

8721. It is good?—I should say it is good, on the whole.

8722. Do you agree with what has been said by other witnesses who think that a specific test ought to be laid down in General Rule No. 1, to the effect that wherever a cap is observed on a safety lamp the ventilation should be considered to be insufficient, and that under General Rule 7 the men should be withdrawn?—No, I would not put it that way. I would say no ordinary work should be performed where the ventilating current shows a cap on an ordinary safety lamp. You might get a cap——

8723. In a pocket?—In a pocket or a cavity in the roof.

8724. That you would not think much of?—I should not say that. Of course, they ought to remove it, and do remove it. I should not say the mere presence of that would make it necessary to withdraw all the men from the district; it would be necessary to withdraw them from the place where it was observed.

8725. Do you think there would be any difficulty in defining what you mean by a cap? Dr. Haldane said he found that there were very different opinions as to what constituted a cap in a safety lamp, and that where he thought he saw a perfectly clear cap the people with him in the mine declared there was no cap at all?—Yes, there would be a difficulty, but it

Digitized by Google

might be overcome by providing that the air must not carry more than a certain percentage of firedamp.

8726. On the whole, you say that the test of a cap on a safety lamp would be as good a test as you could have?—It would be the only test available to the officials in the mine.

8727. I see that you want to tell the Commission something about your views with regard to the use of auxiliary fans underground, which I understand are now prohibited?—The General Rule specifies that a fan shall be placed in such a position that it shall not be injured by an explosion.

8728. Under that rule it is held that you cannot have a fan underground.

8729. (*Mr. Ratcliffe Ellis.*) I do not think there is any decision about that?—No.

8730. General Rule No. 3 is: "Where a mechanical contrivance for ventilation is introduced into any mine after the commencement of this Act it shall be in such position and placed under such conditions as will tend to ensure its being uninjured by an explosion"?—I think that rule ought to be relaxed in some way.

8731. (*Chairman.*) What do you suggest?—In the first place, auxiliary fans might be placed underground even in fiery mines, and in non-fiery mines there should be no restriction at all.

8732. What restriction would you have in fiery mines?—You would probably require the main fan on the surface; that would almost certainly be the case. But where you are getting a long way in-bye you sometimes have difficulty about the ventilation of a district, which they can overcome by putting an auxiliary fan in the mine, and then there is difficulty about this rule.

8733. Would you give the size of the auxiliary fan?—I should think probably it would be sufficient to say auxiliary fans could be placed underground.

8734. You would have the ventilation carried out by a fan on the surface, or by means of a furnace. The auxiliary fan might help a furnace?—Yes.

8735-6. When you talk about an auxiliary fan I suggest an auxiliary fan might still be auxiliary even though there was no other fan, if it was auxiliary to a furnace?—Yes.

8737. (*Mr. Enoch Edwards.*) You suggest where it is a long way into the workings it is necessary to have them?—It is hard on them not to be able to do so, and I think an unnecessary restriction.

8738. (*Chairman.*) Supposing there was an explosion, and the fan blocked up the passage-way and made it difficult for rescue work, it might be as well to provide the size of the fan, whether auxiliary or not, should not bear more than a certain proportion to the size of the roadway, or wherever it was placed. If the roadway was 10ft. by 7ft., the fan should not be more than 6 square feet, or something of that kind?—It is difficult to foresee exactly what might happen, but I think if it simply stated that auxiliary fans could be used——

8739. To any amount and any size thought desirable?—Yes, and then let the question develop.

8740. That is your view—the rule ought to be modified to allow the use of auxiliary fans; that is, fans that did not carry the principal ventilation?—Yes, and also in non-fiery mines the restriction should be removed altogether.

8741-2. And allow any amount of ventilation by fans underground. You have, I see, in your notes the words "Two managers for one system of ventilation"?—I will explain that to your Lordship, if you will allow me. The question arose with me in Scotland, where there was one downcast shaft and one upcast shaft, and one system of ventilation underground, and one manager. Then the agent wished to have two managers, and he gave notice under Section 19 of the Coal Mines Act 1887 that he wished to divide this mine into two parts.

8743. And have a manager for each part?—A manager for each part. I objected, and I got the Home Office to agree with me that it is not desirable that a manager should be in a mine when he has not complete control of his ventilation, and that it might lead to difficulties supposing the manager in the one mine did something which affected the ventilation of the other mine; neither manager would be responsible.

8744. You think there ought not to be a system of divided responsibility, but one man at the head of the whole of the ventilation of the mine who would be responsible for it?—Yes; I had an arbitration on the matter, and lost it.

8745. They were allowed to put in two managers?—Yes, but in that particular mine they have now gone back to the system of one manager. There was another case of two collieries near Hamilton; they got connected underground, and there was one system of ventilation and two managers, and there was no proper agent above them, and these two managers differed about the ventilation, and one of them went down into the other manager's pit and put a stopping in and fouled his workings, and one of them had to be dismissed.

8746. That is not a desirable state of things?—It has been raised in my present district two or three times, but I have always set my face against it. There are some cases I found in existence when I came to the district, and I have not done anything about them, but I do think that there is a great danger in one system of ventilation and two managers.

8747. That is a system which is to a certain extent in vogue in your district. Do you not think it would be desirable, wherever you find it, to remonstrate with the owners?—Yes. In my district at present the agents are almost always men of large mining experience, and there is less objection, perhaps, where you have such men than where you had nobody above the managers able to keep them right.

8748. If you think it is a bad system, I should have thought it would have been your duty to induce the managers and owners to alter it?—I have done it.

8749. If you think the matter is at all urgent, I suppose you would try and get the Home Office to intervene and back you up?—I did in the case at Arniston, but we were unfortunate enough to lose the arbitration.

8750. (*Mr. Ratcliffe Ellis.*) Section 19 is the provision in the Mines Act. I suppose that is the one you went to arbitration under?—Yes.

8751. (*Chairman.*) You are a little diffident about pressing your opinion that two persons should not be jointly responsible for one system of ventilation since you have been to arbitration and have been beaten?—Yes.

8752. (*Mr. Wm. Abraham.*) Are you of opinion that the section should be altered?—I think the Act should be strengthened in that respect.

8753. (*Chairman.*) How would you strengthen it?—I should put in a rule that one system of ventilation must be under one manager.

8754. One man responsible for the efficient carrying out of one system of ventilation?—Yes. Even then I may say there would be difficulties. For instance, there was a colliery in Scotland where they had an upcast and a downcast shaft, and one owner had the first and third seams, and another owner had the second and fourth. I must say that that worked fairly satisfactorily. That was at Ross.

8755. It worked very well, but still there might have been difficulties?—I can see, if it was universal to have two or three managers in a mine, that such difficulties and such confusion would arise that probably the law would step in and alter it, but it occurs so seldom.

8756. (*Mr. Ratcliffe Ellis.*) The foundation of this seems to be that two or more parts of a mine are worked separately?—Yes.

8757. You would not put two managers in unless that was the state of things?—No.

8758. You found, in the particular case you went to arbitration about, that they were worked separately?—The Sheriff held they were held separately. As a matter of fact I should have thought nobody could have doubted that they were not worked separately.

8759. (*Chairman.*) You think the arbitration went against you not because the rule was not sufficiently explicit, but because the arbitrator made a mistake?—Of course I do not pretend to be a lawyer, but I certainly thought he was wrong.

8760. (*Mr. Ratcliffe Ellis.*) How did you come to get before the Sheriff?—They gave notice under the rule to divide the mine into parts. The Secretary of State objected. The latter part of the Section gives

Digitized by Google

Mr. J. B. Atkinson. Nov. 1906.

the Secretary of State power to object, and then an arbitrator was appointed by the owner, and one for the Home Office, and the Sheriff was appointed as an umpire. The arbitrators differed, and the Sheriff gave it in favour of the owners.

8762. (*Chairman.*) With regard to safety lamps, do you consider they are sufficiently used in your district?—Yes, I have no complaint to make under that head.

8763. You have nothing to say about General Rule 8?—There is one point as regards safety lamps, if your Lordship would allow me to mention it.

8764. Yes?—I think some relaxation of that General Rule is necessary. The latter part of the rule makes it obligatory, if one part of the ventilating district is worked with safety lamps, to work all the rest of the district with safety lamps.

8765. You think that part of the Rule is too stringent?—You may have perhaps a leading place where a manager would think he would like to put in safety lamps, but he finds if he does he will have to put them in all the places to leeward, in the direction the wind is going, and so he does not put them in.

8766. You think he need not in many cases?—I think he would put them in if it was not for the wording of the rule.

8767. I thought you wanted to relax the rule?—I say that the latter part of General Rule 8 might be relaxed as cases occur where a difficulty in carrying forward the air current may make it advisable to put in safety lamps in one or two places, although the air current leaving them is scarcely affected, and if all the places to leeward have to be worked with safety lamps a manager hesitates to use safety lamps at all.

8768. The manager would be very glad to use safety lamps if he was not bound by this rule? If he uses a safety lamp in the beginning of an air current he would require to use it right through the air current?—Yes.

8769. You think that might be relaxed?—I think the conditions that exist are such that it might be relaxed.

8770. On the whole, this rule leads to more danger than it obviates?—I think it may.

8771. As regards the use of safety lamps you have nothing to complain of in your district. You agree with everybody that screw locks ought not to be allowed?—Yes.

8772. What about the types of safety lamps? It has been suggested that there should be some system by which types of safety lamps should be tested, and only certain types should be allowed, just as is the case with explosives?—I think it is a useful idea.

8773. Who would you suggest should test these lamps?—I suppose the Mining Department of the Home Office.

8774. It has been suggested by one of your colleagues that perhaps the three senior inspectors of mines might supervise this testing of lamps?—Yes, it ought to be done by inspectors of mines. They ought to have charge of it.

8775. Have you had accidents in your district due to defective lamps or lamps insufficiently examined?—I have had two or three. There was one at Dinnington, which occurred before I came to the district, where a boy went into gas with a safety lamp and an accident resulted. After I came to the district I made inquiry into it, as I had to report upon the case. I was not satisfied that there was anything wrong with the lamp. I had it tested in a stationary mixture of lighting gas and air, and it did not pass flame.

8776. How do you account for the explosion?—There was a suggestion of matches.

8777. You are inclined to think that the boy had matches?—I think in all probability it was a case of matches. The boy had gone in, lost his light, and got frightened, and he had a candle with him. Candles were used in one seam and safety lamps in another. He probably struck a match.

8778. His light went out?—His light was probably put out by the gas, or accidentally.

8779-80. You think that he was in a fright?—I think that was the probable explanation.

8781. (*Mr. Wm. Abraham.*) Were they using naked lights at that place?—It was a colliery where they had just sunk on a lower seam, and they were opening it out, and they had safety lamps in it.

8782. You said just now he had a candle?—He had a candle in his pocket.

8783. (*Chairman.*) He was allowed to use a candle in certain parts of the mine, and he had a candle in his pocket in case he wanted to use it where he might use it. The theory is that he found himself in the dark, got frightened, and lit a match.

8783*. (*Mr. Wm. Abraham.*) That being so, what becomes of the theory of putting safety lights in one part of a district and open lights in another?—I said one part of the mine.

8784. It was the same mine?—Yes. I can read you from the report: "The Dinnington Colliery explosion occurred about 7.30 a.m. on 21st May in the Beaumont seam, only recently sunk to, and lying at, a depth of 133 fathoms. Only one shaft was sunk to the seam. The workings, contracted in area, were the first or whole workings of the bord and pillar system. Air tubes were used for carrying the air down the shaft from the Low Main seam and to the face of the working places. Safety lamps of the Marsaut type were used. The explosion happened in a back headways depending for ventilation on 120 yards of air tubes. The place had been examined at 3.20 a.m. on the day of the explosion by the deputy, who found gas in it and fenced it off and affixed a danger board. On a second visit by the deputy, soon after 5 a.m., he found less gas. A tub of coal, about three-quarters filled, had been left in the place. Deceased appears to have removed the fence and gone into the place with his pony for the tub. After the explosion his body was found about 20 yards up the back headways; the pony, attached to the tub, was found dead four or five yards further in. Deceased's safety lamp was found in the tub in good order. When his clothing was searched an envelope containing lucifer matches was found in his vest pocket, and in his jacket pocket was part of a wax candle. The explosion appears to have exerted some force, as several stoppings and doors were blown out."

8785. (*Chairman.*) Would you find the candle in his pocket if he had lighted it?—I had better finish it: "Coal dust, so far as can be gathered, did not play any part in the explosion. The ventilation of the seam, or at any rate the mode of conveying air to the face, appears to have been defective, and the prosecution of any ordinary working places in the absence of two outlets, and without an exemption from the Secretary of State, was a contravention of Section 16 of the Coal Mines Act. The jury in their verdict were unable to state the cause of the explosion. I obtained the lamp after coming to the district and tested it in a stationary mixture of lighting gas and air, and it did not pass flame. The manager was of opinion, although he did not so state at the inquest, that the lad's lamp had gone out and he had become frightened and struck a match. No struck match was found, but this is the probable cause of ignition." That is just an opinion.

(*Mr. Wm. Abraham.*) The probable excuse, is it?

8786. (*Chairman.*) Have you anything more to say about safety lamps?—I had a curious accident at a colliery in Cumberland where Protector safety lamps were in use, and they were so arranged that you could screw the lamp bottom round so as to reduce the flame, but there was a lug which came over to prevent it being screwed too far. When a man was testing in gas he actually screwed the two parts of the lamp apart, and although the flame of the lamp would be extinguished before the two parts of the lamp separated, the gas had probably been burning in the upper part and had fired through the wick-hole, which is a tube as large as an ordinary pencil would go in. That was a defective lamp. There was another case in Cumberland where a fireman with a shielded Clanny lamp and two shifters with safety lamps were removing some gas. The fireman's lamp was screwed up although unlocked, but the glass was chipped in two or three places, and the flame could be blown out by the mouth. That seemed to be the probable cause of the explosion, although I had the lamp tested in a stationary mixture of lighting gas and air, but it did not pass flame. Those are the only cases that have come before my notice since I have had charge of the Newcastle district.

8787. As regards shot-firing, would you prohibit it during shifts?—No, I do not think I would.

8788. Would you prohibit the firing of several shots simultaneously?—That would be a matter requiring very careful consideration.

Digitized by Google

8789. You cannot call to mind accidents which have happened?—I had a good many when I was in Scotland in the oil shale mines principally. They used to light up as many as seven or eight shots at once.

8970. Every now and then a detonator would cause an explosion?—It was all gunpowder, but sometimes they waited too long. They lighted them with a fuse, and I have known where a man has waited lighting the last shot until the first shot has gone off.

8791. You think the regulations relating to explosives ought to be consolidated?—Yes, there are regulations as to explosives both in the Mines Act and the Explosives Order.

8792. Also, in addition to that, you have Special Rules on the same subject?—Yes.

8793. Do you think all the Special Rules as to shot-firing might be incorporated in the Explosives Order or the Mines Act?—I do not think there is much in the Special Rules relating to shot-firing except what is in the Mines Act already. Anything that is in the Special Rules might be very well, I believe, added to the Act.

8794. There are one or two very valuable additions in the Special Rules. What about miss-fire shots?—I think that is the only one of very much importance.

8795. That might very well be incorporated in the Act of Parliament?—In the Act of Parliament, but, on the other hand, you must remember that miners and officials about collieries are very apt to look to the Special Rules only, and not trouble their heads about the Act.

8796. If the Special Rules are very much reduced in volume, and it was understood by the miners that a large number of what used to be in the Special Rules was incorporated in an Act of Parliament, perhaps they would look at an Act of Parliament rather than to the Special Rules?—The idea to some extent in the Special Rules is to group each person's duties. For instance, you have rules for winding enginemen and for brakesmen.

8797. There is no reason why you should not have grouping of duties. There is no reason why the Act of Parliament and Special Rules should not be put together, or why you should not have notices up as you have now notices, I understand, giving the principal regulations of the Mines Act that the men ought to know. You might have notices up in the same way with regard to the duties of each particular man the way you have now in the Special Rules, and those notices might also incorporate the provisions of the general Act, or refer to them in some way?—Yes, the great object is to keep things as simple as possible and not confuse people. Many of them are not accustomed to reading Acts of Parliament.

8798. The general opinion appears to be that a great deal that is in the Special Rules might very well be put into the Act of Parliament, and that it is desirable to keep the Special Rules as short as possible. That seems to be the general view, I think?—I do not know that I would altogether agree to that. I know that many officials are apt to look to the Special Rules as guide for their duties.

8799. Do you consider that they do not think about the General Rules under the Act of Parliament: that it does not occur to them?—Their attention is called to the General Rule very often by the Special Rule.

8800. All the provisions in the Act of Parliament that are of importance to the men, I understand, must be put up at every colliery?—Yes.

8801-3. I observe in your district last year there were a considerable number of fatal accidents and non-fatal accidents from falls of side and roof. There were 81 persons injured and 43 persons killed. Your district is the lowest with regard to the average death-rate for five years from falls of side and roof, but at the same time there are a great many accidents?—Is it lower than the Midland district?

8804. Yes, slightly lower. Yours is ·54 and theirs ·56 per 1,000 persons employed. How do the Special Rules for timbering work?—My objection to the Special Rule that we have in Durham and Northumberland is that I cannot understand it. I do not know exactly what it means.

8805. The Special Rules give, I imagine, a maximum distance that there must be between the props. The props must be put up at certain distances, and there must not be more than a certain number of feet between them?—All the manager is required to do by the rule is to fix a distance which shall be the maximum distance at which props are to be set; but I have tried to understand it, and failed to see what it really means. When I was in Scotland and in Cumberland we got a rule established which introduced the important ratio of area of roof and number of supports.

8807. It is a better way of dealing with it?—Some of the people in Northumberland and Durham actually make use of that in putting up their props.

8808. Instead of saying there must be a certain distance, they adopt your Scotch principle?—Yes, and I got it put in the Cumberland Rules.

8809. You understand the Cumberland Rules?—Yes. It says: "Where timber is used to support the roof he"—that is, the manager—"shall keep posted at a mine a notice which may be varied from time to time according to circumstances notifying for each seam or district of a seam or part or parts of a district of a seam that no point of the exposed roof in the working place, unless where brushed, shall be more than a specified distance from a prop-head-tree, crown, head, chock, pack, building, mineral face, or other roof support."

8810. That you consider a difficult way of dealing with the matter?—It is an awkward way, but you can understand what is meant. When, however, you say props are to be 4 feet apart, as in the other rule, it rather means that an actual compliance with the rule would be, if he had one prop he must have another prop 4 feet away, and then you go as far as you like, but if you set a prop you must have another prop 4 feet away. It is an awkwardly framed rule, and more care should have been taken with it.

8811. It has been suggested that laying down these hard and fast rules makes the men careless; they think that if they put the props within the prescribed distance that is all that is necessary, and they do not consider it necessary to use their own judgment?—I do not think that has much to do with it.

8812. You do not think that is of much effect. These timbering rules have had very little effect one way or the other?—Very little. A man will not work in a place where he thinks the roof is likely to fall; but what is wanted is to guard against a large number of accidents that happen in places that apparently are quite safe.

8813. That is to say, an ordinary hewer would consider them safe, whereas if you had a skilled deputy, he would see they were not safe?—A skilled deputy would think they were quite safe.

8814. How would you deal with such a case as that?—By putting in supports where they are apparently not required. Often the difficulty is, if you put props in you interfere with the man working the coal. By the French system, which I think is a sound system, you get supports forward to the coal, and yet you leave room for the man to work.

8815. (*Mr. Ratcliffe Ellis.*) Crown them?—Crowns or head-trees. It is a sort of spile driven forward to the face. They put in a crown parallel to the face, so far back, and drive iron supports forward to the face.

8816. (*Sir Lindsay Wood.*) Into the coal?—Up to the coal face. That is the French system, and something of that kind is desirable.

8817. (*Chairman.*) Do you know how the French accidents compare with ours?—This question was brought forward in connection with the Courrières Colliery, where they have a very low death-rate from falls.

8818. That was their system, and they have a very low death-rate?—That was their system. At the same time it is very difficult to get people to move in the matter, because the owners and managers supply as much timber as is required, and managers press on the men to put in supports, and the men themselves put in as many supports as they think necessary, and they almost seem as if they were prepared to take the risk of accidents. If you look at my reports for the last two or three years, I have given what the local inspectors say (the local inspectors in Durham and Northumberland always inspect the scene of the fatal accidents), and they say it is a pure accident in nearly every case.

8819. That is to say, it is extremely difficult to tell from the look of things at the coal face what timbering is necessary. A skilled man might easily be deceived?—Yes, it is the one danger that is always present.

Digitized by Google

Mr. J. B. Atkinson.

29 Nov. 1906.

8820. Your suggestion is that we should follow the same system which was followed in France: in the case of Courrières, where the accidents from falls of roof and sides were extraordinary small—·15, I think, instead of ·56, which makes a good deal of difference?—I say some such system is the only system likely to reduce the fatalities much. I may say the owners never took kindly to this timbering business—neither the owners nor the men, so far as I can see.

8821. I should have thought it would have been the interest of the owners financially to see that there were as few fatal accidents as possible?—Yes.

8822. You could do a good deal of timbering for the sum thus saved?—Yes, I certainly think something might be done to lessen the number of accidents from falls.

8823. ·15 is the Courrières death-rate, and the average throughout the United Kingdom is ·78. Yours is ·56?—·54.

8824. And the next lowest is the Midland with ·56. It would appear they have done more than we have in France?—In a great many cases of accidents that I have personally investigated that occurred at the working face some unseen fissure has caused them. In some cases the deputy has just been in, that is the man who looks after the timber, and the hewer has plenty of loose props, and it appeared safe. The way to prevent accidents of that kind is to set timber where it does not appear to be necessary.

8825. It would appear that the French system is very efficacious. With regard to haulage accidents, I observe a large number of accidents last year are from being crushed by trams and tubs. No less than 49 people were injured by being run over and crushed by trams and tubs, and 17 were killed?—Yes; in Durham and Northumberland the driving is all done by horses and ponies, and the boys sit on the limbers, and a lot of accidents happen in that way.

8826. Do you find in some mines discipline is better enforced than in others with regard to the boys sitting on these limbers?—They are allowed to sit on the limbers.

8827. Do you think they ought to be allowed to sit on the limbers?—I do not see how you can avoid it very well.

8828. In order to drive the pony they sit there?—The putters all sit on the limbers, and the drivers very often do.

8829. They are allowed to sit on the limbers?—Yes, and if he puts his head too far forward it is caught by the timber or roof, or the pony crosses out sometimes and crushes him with the limbers.

8830. Have you any suggestions to make with regard to the lessening of haulage accidents? Do you think, as to being run over, there ought to be a certain amount of room one side of the tubs, say at least 2ft. between the tubs and the side?—On the main haulage roads that is almost always the case, but you could not very well have it in all the workings.

8331. On the main haulage roads that is nearly always the case?—Yes.

8832. Wherever possible, it would be extremely desirable that men should have access to their work without having to go along the haulage roads at all?—That would be very desirable.

8833. That cannot always be done, I suppose—it would be very expensive indeed to do it in all cases?—Yes, it would be difficult in some cases.

8834. In your district I suppose they have the usual safety appliances for preventing wagons and sets of wagons from running back—the block system?—Yes, they have a variety of such arrangements, but accidents still happen. I have known a case where tubs apparently have got past three things that ought to have stopped them.

8835. In some cases the tubs, I understand, are kept together by a wire chain?—They sometimes have an additional safety chain over the tubs.

8836. That is a good thing?—Yes.

8837. Would you make that compulsory? That prevents any single truck getting detached in any way?—Yes. Do you mean on self-acting planes or in the case of haulage generally?

8838. Haulage generally, I should think. I saw it in Durham in the ordinary haulage road, I think?—I do not know that it is so necessary on an ordinary haulage road as on self-acting inclines.

8839. They ought to be wired together?—I think it might be desirable.

8840-1. You want to say something about winding engines?—I have come across two or three cases lately where a complaint was made that the break was not sufficiently strong. The rule says "an adequate break." Could that not be defined in this way—that a break ought to be sufficient to hold the cages in any position with the maximum load on?

8842. (*Mr. F. L. Davis.*) Pull them up in the shaft?—Stop at any point in the shaft and hold the cage there.

8843. (*Chairman.*) Even though the rope broke?—No, in ordinary cases. I find in some cases if you had the cage laden with tubs at the bottom and nothing in the other cage, and you are coming away and something went wrong, that then the engineman would not be able by his break to prevent that load going back——

8844. The break would not be strong enough?—The break would not be strong enough.

8845. I should have thought the rule was not complied with unless you had one strong enough for that. General Rule 30 says: "An adequate break or breaks and a proper indicator." Surely an adequate break would mean a break capable of acting under every conceivable circumstance. I mean capable of stopping the maximum load?—He could not expect the break to act if the engine was running very hard—not all at once. It would not act then.

8846. If the engine was running very fast you could hardly expect any break to act at once if you had to pull up within a short distance. You could not expect it to be strong enough with an engine running full speed to pull it up immediately?—No.

8847. There would be some difficulty in defining an adequate break?—The only way I can suggest is that it should be able to hold the maximum load in position.

8848. (*Sir Lindsay Wood.*) When at rest?—When at rest.

8849. (*Chairman.*) You think that would be a proper definition? That is the best definition you can think of? I understand that you want to say something about Electricity Rules, and the dangers of electric coal-cutters?—As regards electric coal-cutters, that was a point my brother had intended to bring before the Commission, but he omitted it. I cannot say that it applies to my district, but I understand the Electricity Rules really do not deal with that in a satisfactory way, which is one of the most important points.

8850. It is not so much an objection to electric coal-cutters as to the conditions under which they work?—It is the only case in which you are likely to use electricity in a part of a mine where you are likely to get gas, and that is a case which requires safeguarding against, and apparently the present precautions are not sufficient.

8851. You think there may be electric sparks?—Yes.

8852. What does your brother suggest?—I think his suggestion is that some amendment of the rule is necessary.

8853. To safeguard against the possibility of electric sparks due to the working of these coal-cutters?—Yes.

8854. That is not sufficiently guarded against at present?—Yes.

8855. That is a matter for an electric expert, I should think?—As regards the Electricity Special Rules generally, in my opinion these rules should have been much shorter and of a more general nature. It is contrary to the principle that has hitherto regulated Acts of Parliament and Special Rules relating to mines to provide minutely for dangers that have not been proved to cause much loss of life, and it should not be assumed that owners will not take adequate precautions until the contrary is proved. You would imagine it was the one great danger in mining. There is a want of perspective in the way it has been dealt with.

8856. (*Mr. Ratcliffe Ellis.*) They are very much shorter than as first proposed. A good many were intended as instructions?—Yes. If they had been in a Report as instructions, but to make it a criminal offence if you do not carry them out seems to be going

Digitized by Google

rather too far. If all the dangers of mining were guarded against as minutely as electricity has been dealt with, you would have thousands of rules.

8857. (*Chairman.*) You think, at all events, they go into too great detail?—I think a dozen rules might have covered all the chief sources of danger.

8858. With regard to the question of establishing Special Rules, have you anything to say upon that?—Yes; I have been trying since I went to the Newcastle district to get that particular point which I have already called attention to arranged, and have not been able to do it.

8859. Which point do you mean?—As regards the examination of shifts of stone-men and repairers, the examination of the workings before the shifts of stone-men and repairers go to their working places.

8860. You have not been able to get that done?—I have not been able to get that done.

8861. You want a Special Rule, but according to you the Special Rule should not be required for that purpose. You think that General Rule 4 is perfectly explicit on the subject, but the Special Rules have not been drawn up in accordance with that?—They do not properly carry out the General Rule.

8862. Do I understand the hewers go down at one time and the shift workers at another?—Yes.

8863. The examiners go down two hours before the hewers, but not two hours before the other workers?—I may say they generally do do it. It is generally carried out.

8864. The Special Rule does not say they must do it?—It does not provide for it.

8865. You want the Special Rule to be brought in accordance with what you consider to be the meaning of General Rule 4?—Yes.

8866. That is your point?—Yes.

8867. You have not been able to get the Special Rule altered?—No.

8868. (*Sir Lindsay Wood.*) Does not the Special Rule set out that the places have to be examined before each man goes into them, that is by deputies in one case, and in the other case, according to you, it ought to be done by somebody else?—I am not aware of that. You might take Rule 91 under the head of underground workmen and boys.

8869. So far as hewers are concerned their places are examined by the deputies before they go to work. In the case of the repairing shift and that of the stone men their places are not examined before they go down?—I do not say they are not examined, but there is no Special Rule which requires them to be examined.

8870. The General Rule which sets out that the places have to be examined before the workmen go in does not state any particular class of workmen?—The General Rule says the time has to be specified by Special Rule. It is specified for the shifts of hewers, but not specified as regards the other shifts.

8871. As a matter of fact the examination is made?—Yes, but there is a good deal of laxity. I have had two fatal explosions in the district since I came to it that have been due to laxity in that respect.

8872. The principle is one thing we are talking about and the carrying out of the principle is another matter? The practice is that the places are examined, and you say the time ought to be specified before the examination?—It is not so done with respect to the shifts of repairers and stone men.

8873. (*Chairman.*) As a rule they are examined when there is no obligation in the Special Rule that they should be. It seems to be a good point; hewers are only mentioned. You say you have been trying to get the Special Rules altered, but you have not been able to do so. What steps have you taken?—I drew up that memorandum in the first instance.

8874. What did the owners say to that?—Then we had meetings, and we drew up a draft Special Rule.

8875. You and the owners together drew it up?—Yes.

8876. What happened?—The men were not called in. I suggested that the men should be called in to a meeting, but the men were not called in.

8877. Then what happened?—Then I considered the rules as a whole, and found that there were a good many other things that wanted being brought up-to-date, and our instructions from the Secretary of State tell us that we are to try and aim at one code for each district. I found that there were four principal Codes, and other little variations.

8878. I should like to keep to the point as to this Special Rule, which you say was not in accordance with the requirements of General Rule 4. You told the owners that you thought that was so, and you met together and put before the owners a draft rule which satisfied the General Rule. Why was that not accepted?—The draft rule was drawn up by the owners and Inspectors conjointly.

8879. Why was that not made effective and put into Special Rules?—It might be partly my fault; I urged them to take the opportunity to bring the Special Rules in other respects up to date and to consolidate the various codes into one.

8880. You went off to other subjects?—Yes, that went on until an accident at North Seaton occurred, and then the rule was actually sent out to be proposed, but so many objections were made by the men that it was withdrawn.

8881. To this Special Rule?—To the proposed amendment. In the proposed amendment the time was increased from two hours to three hours, and the men objected to that. I do not think the men understood what was meant.

8882. At all events, they objected, and the reason why it was not established was not because the owners would not establish it, but because the men objected?—Eventually it came to that.

8883. On the general question of establishing Special Rules, I understand that on all occasions if there is any difference of opinion, you go to arbitration?—Yes, that is provided for.

8884. Do you think that the Home Secretary should be obliged to go to arbitration, or that the same procedure might be adopted as is the case of the Factory Act, where dangerous trades are concerned; the Secretary of State, after holding an inquiry, can make what regulations he pleases without being obliged to go to arbitration at all. Do you think that would be a proper practice to introduce into the Coal Mines Regulations, that the Secretary of State should himself be top of the tree, and have the power to do what he likes, or, as is the case at present, that he should be obliged to submit disputed points to arbitration?—I think I prefer arbitration.

8886. Now I understand if a new pit is opened you have to go through all sorts of difficulties in the way of establishing a Special Rule for that pit?—That is so.

8887. Do you think that ought to be necessary? Do you not think if a new pit is opened in a district, unless there is any obvious objection, the Special Rules should apply to that pit, I mean those which apply to the pits round about?—I think that is very desirable if it could be arranged.

8888. You have four codes of rules in your district?—We have a code in Cumberland which has been brought up-to-date, since I came to the district. I had meetings with the owners and the men's representatives, and it has been brought up-to-date, and is fairly satisfactory. There is a small code for land-sale collieries in Northumberland, ofter employing only two or three men. That is fairly satisfactory, but for the larger collieries in Northumberland and Durham, I really do not understand how many codes there are. There were four codes originally, and then there is a certain amount of variation, particularly in Northumberland, even in the recognised code, and the differences, as far as I can see, are small. They are all practically the same rules, and could be consolidated into one set of Rules. It causes me a great deal of trouble. People send me the wrong copy to certify, and they do not in many cases know themselves, which is the right code to have. They get rules printed with the ages altered, which have been altered by Act of Parliament—but it cannot alter them in the Special Rules. I can only certify Special Rules which agree word for word with the signed copy in my possession.

8889. How many codes would do for your district?—One for large collieries.

Digitized by Google

Mr. J. B. Atkinson.

29 Nov. 1906

8890. And another one for the small?—The land-sale code might continue. In Cumberland the practices and terms are different. They require another code.

8891. You would require two principal codes, and perhaps another code for the small mines?—Yes.

8892. You do not appear to think a very great deal of what is now in the Special Rules could be put into the Act of Parliament. You are rather inclined to keep the Special Rules almost as they are at present?—Under officials principally have got into the habit of looking at the Special Rules for their instruction.

8893. Do you not think a good many Special Rules might be made obligatory all over the country by Act of Parliament?—Yes, I think so.

X 8894. With regard to investigation into mine accidents, have you any reason to think that the inquest does not bring out all the facts of the case?—No, I am fairly satisfied with the coroner's inquest.

8895. Have you ever had an accident when you thought it would have been desirable to hold a second inquiry besides the inquest?—Not in England.

8896. Under Section 45?—In Scotland until 1895 they had no public inquiry.

8897. Under English law you have never met with a case where you thought it desirable that a second inquiry should take place, with a view to elucidating further facts?—Not since I have been in charge of a district in England.

8898. Now it is entirely at the option of the Secretary of State whether a second inquiry shall be held or not. Do you think that is right, or do you think if a representative body of men were to desire it, were dissatisfied with the result of the inquest, and wanted a further inquiry, that they should be allowed as a matter of right to have such an inquiry?—I do not know that there would be much objection to that.

8899. At all events, you have never come across an instance in which you have thought it would be desirable?—With regard to coroners' juries, I find that they are too much inclined to think about questions of compensation. That is, perhaps, the great objection to them.

8900. You do not always agree with their verdict, although you think all the facts are brought out?—I think all the facts are brought out. Another objectionable feature of the coroner's jury system is that the inquests are held rather too hurriedly. The jury have to view the body, and that makes the inquest have to take place in a day or two, unless it is adjourned.

8901. Would that not seem to show in some cases that evidence that it would be desirable to bring has not been brought?—No, but it makes an undue hurry of the thing.

8902. (*Mr. Ratcliffe Ellis.*) They are sometimes adjourned?—It is adjourned always, if necessary. In the case of a single fatality it is very rarely adjourned. It is not necessary.

8903. (*Chairman.*) If it were necessary it would be adjourned?—It would be adjourned.

8904. Notwithstanding this hurry, you are of opinion that all evidence necessary to be brought forward is brought forward?—Yes, but it is in too great a hurry. I would suggest if they could do away with viewing the body it would allow more time. I do not know whether that comes within the scope of this Commission.

8905. Surely if the proceedings had been hurried, and if any evidence is produced afterwards that ought to have been produced at the inquest, it would be the duty of the Secretary of State to order another inquiry?—Yes.

8906. However, you have never known of such a case?—If they could do away with the viewing of the body which is quite unnecessary in mining accidents—the jury cannot learn anything by viewing the body.

8907. You think doing away with the necessity of viewing the body would give more time for the actual inquiry?—Yes, and I also think that a shorthand writer should be provided.

8908. The evidence is not taken down in shorthand?—Only in the case of big explosions; in other cases you have to take down your own evidence.

8909. You think in all cases a shorthand writer should be provided?—Yes, I think in all cases there should be a shorthand writer. If the viewing of the body was done away with the coroner would be able to do probably what they do in Scotland now in fatal accident inquiries. They set apart one day a fortnight in a mining district, and hold several inquiries.

8910. There may be cases in which there is no body to view?—Yes, but then there is no inquest. There have been several cases where they have not found the body.

8911. What happens in those cases?—There is no inquest.

8912. Surely it is the duty of the Secretary of State to order an inquiry if a man is blown to pieces and his body cannot be found?—There was a case Mr. Bain had in his district two or three years ago where in a sinking pit there was a great inrush of sand and water; the freezing process had failed. A man's body was left in the pit, and there was no inquest held.

8913-21. No inquiry held?—The inspector made an inquiry, but there was no coroner's inquest. The facts were quite simple, and there was no need for a public inquiry.

8922. (*Chairman.*) Where there is an accident, and where nobody is killed, you would, as a mines inspector, inquire into the accident?—Yes; your Lordship will understand I am referring to public inquiries.

8923. Supposing an accident occurs in which a good many people are injured and nobody is killed, what takes place?—There is an inquiry made. As I have already stated, in my district the practice is to inquire into all reported accidents, whether fatal or non-fatal.

8924. You inquire into an accident, but there is nothing in the nature of a public inquiry. Supposing there was a great difference of opinion, and the men wanted there to be an inquiry held, they might go to the Home Sscretary even though nobody was killed?—I am not sure about that.

8925. Section 45 says: "Where it appears to a Secretary of State that a formal investigation of any explosion or accident and of its causes and circumstances is expedient, the Secretary of State may direct such investigation to be held"?—Apparently, whether there is loss of life or not.

8926. A person need not even be killed or hurt. An explosion might occur, and it might be desireable to inquire into the case although it hurt nobody?—Yes.

8927. With regard to rescue work and breathing apparatus have you anything to say?—There is a proposal to establish a corps in Cumberland in connection with the ambulance movement there.

8928. A rescue station?—Yes, and it has been considered in the North of England, too, in Durham and Northumberland.

8929. Do you find the ambulance work is popular among the men?—Yes.

8930. They submit to being drilled, and like it?—Yes, they like it.

8931. In some places I understand there are prizes given?—Yes, prizes are given every year in Cumberland.

8932. That is a good thing, no doubt?—Yes.

8933. Do you know anything about breathing apparatuses yourself?—No, except by reading and seeing one or two of them. I think there is a mistaken notion about them, that they would save hundreds of lives.

8934-5. You rather doubt that?—I rather doubt that. I have been considering how many cases of accidents I have had where I think they might have been useful. There was one at Mauricewood, in Scotland, where 63 lives were lost, caused by fire, and an apparatus of that kind would have been useful there. I do not know that it would have saved the lives, it might have been too late, but it would have been useful in some work necessary to it. In a fire at Hill-of-Beath Colliery, I think an apparatus of that kind would have been useful, but I do not think a very great saving of life would result from the use of the apparatus.

8936-7. You are not an expert with regard to the appliances?—Not as regards the appliances, but as regards the conditions under which they can be used.

8938. I understand that you want to say something

Digitized by Google

to the Commission as to the need for having escape shafts properly slided. What do you mean by that?—I think the Commission has had a letter on that subject from the Secretary of the Miners' Association at West Sleekburn Colliery. There was a case there where something happened in the downcast shaft, which is the coal-drawing shaft, and they had an escape shaft without any slides in it to work with a kibble; they did not actually use the escape shaft, because they found they could use the kibble more conveniently in the downcast shaft; the accident happened at 4 o'clock in the afternoon, and the men and lads were not got out until about 9 o'clock the next morning. If the other shaft had been properly slided they would have been all out in a very short time. It is just a question whether in an extensive colliery there should not always be two shafts fitted with cages running in guides for the use of the men. It might be rather an important matter in some cases of fire in the pit; unless they could get the men out quickly there might be a considerable loss of life. Nearly all the large collieries have it already.

8939. You think that ought to be made a statutory obligation?—I am almost inclined to think so.

8940. (*Mr. F. L. Davis.*) Do you mean in one colliery with a downcast shaft and an upcast shaft both shafts should be fitted with guides and cages?—Yes.

8941. In every case?—It would be desirable in every case.

8942. (*Mr. Wm. Abraham.*) Will you let the Commission know, in order that we may have it on the Notes, what you mean by a "kibble"?—A bucket, sometimes called a trunk, I believe.

8943. (*Mr. Enoch Edwards.*) Do the men come up in it one at a time?—No, sometimes five or six.

8944. (*Mr. Wm. Abraham.*) Were the men brought up, say, five or six with one leg in the bucket and one outside?—They generally put both legs in.

8945. In that position they are exposed in the pit?—Yes.

8946. In order to get them into the kibble, that kibble had to be drawn to the side in order to put the men in?—Sometimes; sometimes it stands on the bottom.

8947. That does not apply in the case which you have mentioned?—I think in that case the kibble would be drawn to the side for them to get in.

8948. The men in the kibble would be exposed to everything in that shaft?—Yes.

8949. On those occasions large comet lamps are used?—Yes.

8950. The men in the bucket would be exposed to the boiling oil from them?—Yes, but that would not be very much.

8951. In this case was it so?—I do not know; it might be. I have no doubt it would be so, but it would not be a very great matter.

8952-3. (*Dr. Haldane.*) Is there not usually a cover like an umbrella on the top of the kibble?—No.

8954. (*Mr. Wm. Abraham.*) What time did it take to raise the men?—I think I said from about 4 o'clock in the afternoon till 9 o'clock next morning, that would be 17 hours.

8955. To bring these men up?—Yes.

8956. With that fact before you, do you think that a kibble is a proper apparatus under Section 16?—It is generally held to be so.

8957. Do you think that it is a proper apparatus?—Legally I am inclined to think it is.

8958. Does it meet the necessity of the cases in your opinion?—No, I think not.

8959. Some of us know of other cases. Supposing that during the time these men were taken up in that slow way a fire had happened, what would have been the result?—That is what I have said. Supposing there was a fire in the pit it might be a serious matter for the men to get up so slowly.

8960. In your opinion that Section needs to be more definite?—I think it would be very desirable.

8961. Do you know another case in your district?—If you could recall it to me I might remember.

8962. Do you remember another case happening in that very pit two or three years previously?—I think I have particulars of that, but I think it was before I came to the district.

Mr. J. B. Atkinson.

29 Nov. 1906.

8963. Do you know the men in that case waited upon the management, asking that an improved state of things should be provided—an improved apparatus?—I do not know of my own knowledge.

8964. Do you know that there was nothing done during the periods between these two accidents?—Not to my knowledge.

8965. If there was nothing done, what is the good of talking about the owners showing any disposition to save lives? I do not want to be hard on the owners, but that is my point. Did the owners in this case show any disposition to save the lives of the men in such circumstances when they did not make any new provision between these two accidents?—There was no danger except the danger of riding slowly up the shaft.

8966. That was every danger for them at the time?—There was no actual accident, except that accident to the shaft.

8967. When you went there you asked the management, "What if a fire had taken place"?—I have no doubt I pointed that out.

8968. That objection is as strong to-day as then?—It is just as likely one day as the other.

(*Mr. Wm. Abraham.*) I think the opinion of the witness is that Section 16 (1) (c) ought to be improved.

8969. (*Chairman.*) How about ankylostomiasis?—I have had no cases in my district.

8970. You have no reason to suppose there is any?—The most likely place, perhaps, was Nenthead, in Cumberland, where there are a number of Italian miners, but I visited the mines, and took hygrometric observations, and, although the air was nearly saturated with moisture, the maximum temperature was only 61½ degs. Fah., and that is supposed to be rather low for the development of the worm; but there are some seams at Whitehaven where I should think the conditions were rather favourable, as you have a temperature at the working place of 74 degs. Fah., with the air fully saturated.

8971. Are you looking out for this disease?—Yes.

8972. Do they provide sanitary conveniences for the miners?—Yes, but they are not very common.

8973. If you did find the disease, you would have to be very careful about that?—Yes.

8974. With regard to the examination system, what do you say to the working of the Examination Board in your district?—I think it works fairly well.

8975. Are you satisfied that the examination is sufficiently severe?—Yes, I think so.

8976. Does the examination go into the question of fiery mines?—Yes.

8977. Anybody who wants to pass the examination must pass with a knowledge of fiery mines?—Yes.

8978. It is not one of those examinations where a man has to get a certain number of marks anyhow, where he may fail in some subjects and do well in other subjects, and get through the examination?—I cannot say how the examiners adjust the question of marks, but I have every confidence in them.

8979. How do you know, as a matter of fact, that everybody is bound to pass with a knowledge of fiery mines?—I see the questions.

8980. Do you know what the system is in your district, whether they must pass in every subject, or whether a certain number of marks in all the subjects put together will enable them to pass the examination?—I cannot remember off hand, but the whole thing has been before us at board meetings, and I am sure if I saw any fault in the system I would have remembered it.

8981. Do you know that there are certain questions about fiery mines. If you only see questions you would not know whether a man would be obliged to answer the questions on fiery mines, or whether he would be able to get through the examination without answering them?—That might be so. I have not looked into it so closely. The matter is left in the hands of the examiners.

8982. Some examiners take one view of their duties, and other examiners take a different view. We are told in some cases that it is necessary to pass in cer-

Digitized by Google

Mr. J. B. Atkinson.

29 Nov. 1906.

tain subjects, but that there are others in which it is only necessary to get a certain total number of marks?—I cannot give details, but I could get them.

8983. Do you think it desirable to have one central examination for all the districts, or is the present system a good one?—There would be no objection to a lesser number of centres. There might be, say, only one examination, held at the same time at different centres.

8984. The examiners might meet together every year in order to agree upon the set of questions, and that set of questions might be examined upon by the same examiners or different examiners in different districts. Would you suggest that the same set of questions should be used in every examination?—The objections to that might be the question of mining terms in different districts, but that might be adjusted. Otherwise, I do not see any objection to it. You must consider the convenience of candidates as much as possible, and have the examinations at fairly convenient centres.

8985. It has been suggested, if you have a central examination, it might be well, if a man wants a position as a manager in a particular district, that he should also be subjected to a *viva voce* examination, carried out by persons familiar with mining in the district?—I dare say that might be desirable.

8986. Do you think there ought to be one certificate, or a certificate for fiery mines, and a certificate for non-fiery mines?—I think there should be only one class of certificate.

8987. You do not attach any particular importance to adding on to the general examination a special examination in any particular district where a man wishes to work?—I do not think that is very necessary.

8988. With regard to certificates for managers of metalliferous mines, do you think they should be obliged to obtain certificates or not?—I think it would be desirable. I have asked a lot of them, and I think the general feeling is in favour of it.

8989. Do you think it would be necessary to classify the certificates, or would one certificate do?—I think one certificate might do.

8990. What about the necessity for experience before you can sit for examinations. Do you think it would do to allow experience in a foregin mine to count?—I do not see why it should not do so.

8991. It might be more difficult to find out whether a person has worked underground in a foreign mine than in an English mine?—Yes, but subject to that I do not see why experience in foreign mines should not count.

8992. Do you think the same with regard to Colonial mines?—Yes.

8993. With regard to plans, it has been suggested that the working plans are not always as accurate as they should be, but when the interest of the owner depends on the accuracy of the plans he will sometimes call in a skilled surveyor from outside?—That is so, to some extent.

8994. You agree with it?—In the North of England particularly there are very large royalties, and it is only when they get very near the boundaries that very great accuracy is desired, or, perhaps, necessary. If you are working away at a virgin field of coal, and you know it is all solid in front of you, it does not matter. Of course, it is desirable to have accuracy, but it is not actually necessary from the point of view of safety. But when you come to barriers, and there may be adjoining workings, then a great many people do call in skilled surveyors from outside.

8995. Not in their own interests, but in the interests of the miners; that is to say, a colliery-owner will be content with plans that are not quite accurate, until he gets near the boundary, and when he gets near the boundary, not in his own interests, but in the interest of the safety of the miners, he will feel that it is desirable to have accurate plans?—In his own interest also. If he goes over the boundary and takes somebody else's coal, he would have to pay pretty smartly for it, or he would not care to leave coal when he thought he was not at the barrier. In the North of England a great many of the surveys are made by young men, who have served their time and picked up surveying, and then they start and make the plans, and then, perhaps, in two or three years' time, they leave for a better place, and another young man comes.

8996. These young men are not always very skilful?—Certainly, not always sufficiently skilled.

8997. Would you suggest no plan should be accepted as accurate unless signed by somebody who had passed the examination of the Surveyors' Institution, or, at all events, some examination in map-making?—I believe that in the interests of everybody concerned with mining that something of the kind is necessary.

8998. Have you any knowledge of accidents having happened through inaccurate plans, or through the place being inaccurately stated on the plans?—Accidents?

8999. Yes, accidents like an inrush of water and flooding?—I cannot at this moment call to mind any case in my district. I know of cases.

9000. Now, about under-sea workings. Have you any knowledge of them?—Yes. We have in Northumberland under-sea workings at Newburgh, North Seaton, Cambois and Cowpen Collieries. In Durham at Whitburn and Wearmouth Collieries, and in Cumberland at St. Helens, Whitehaven and Harrington Collieries, and there is an iron ore mine in Cumberland working under land reclaimed from the sea by means of extensive sea walls.

9001. Have you any suggestion to make with regard to under-sea workings as regards safety?—As far as I am aware of any that are going on now, the conditions are safe. The great danger is valleys filled in with alluvium coming into the solid measures. You have no means of testing that except by boring up over, or you may go out to sea and bore from a raft.

9002. You would lay stress on the necessity of boring where there was any reason to suppose that there was any possibility of an inrush of water?—It would be very necessary, in some cases, to put holes upwards to test the thickness of the solid strata.

9003. Do you think that is done sufficiently?—It is not done now in connection with any sea-coal workings, because I do not know any place where it is necessary. It has been done to some extent in the case of workings under river gravels.

9004. Still, you think that more care might be reasonably exercised than is at present exercised with regard to this?—I have never had an accident from an inrush of the sea, and in the Newcastle district there has only been one, though it was a very bad one, at Workingtin, where about 30 lives were lost, I think. That was before the inspection of mines.

9005. What was that due to?—That was due to working under the sea where an old alluvium valley came in and they worked to the rise until the solid strata was too thin.

9006. If they had known about this danger, could they have guarded against it?—Yes, by boring upwards.

9007. You think they ought to have done that if the circumstances were such?—Yes, but even in that case it seems to have been known at the time that there was danger.

9008. You consider that there was distinct negligence?—It is a long time ago, but from what I read about it it seems to have been a careless piece of work.

9009. (*Dr. Haldane.*) Would not there be a difficulty in putting bore-holes up through the stone? It would be a very troublesome process, would it not?—No, you can bore upwards a considerable distance.

9010-11. (*Chairman.*) How deep below the sea were the workings at Workington?—I do not think they were very far below.

9012-13. I understand that you wish to say something to the Commission about checkweighing?—I do not know whether the two Scotch Inspectors said anything about it, but I found in Scotland a very large proportion of the time of the Inspectors was taken up inquiring into these matters.

9014. Your time is taken up which ought to be taken up with other duties?—More profitably.

9015. So that in that way indirectly the safety of the miners is concerned in checkweighing disputes?—Yes. The question is whether that whole matter could not be taken out of the Mines Act.

Digitized by Google

9016. You suggest it is inadvisable that the mines inspector should have his time taken up with check-weighing disputes?—I certainly think so. I may say although there was a good deal of that sort of thing in Scotland, since I came to the Newcastle district I think I have only had one complaint of the kind.

9017. Your time has not been much taken up?—Not in the Newcastle district, but it was a good deal in Scotland, and we had to go into matters very carefully.

9018. You think this matter is so foreign to your other duties that it might be very well relegated to other people to take in hand, for the settlement of these disputes with regard to checkweighing?—If it could be arranged, I think it would be desirable.

9019. You do not want to say anything on the law of the subject as to how it might be altered?—There is one point, but I do not know that it is necessary to mention it. There is a question about a standard weight in Scotland. If the miner puts in more than a standard weight of, say, 10 cwts., he gets no pay for it.

(*Mr. Ratcliffe Ellis.*) That is, according to law. The Checkweigher Clause provides that all coal he gets is to be paid for. That is the basis of the whole thing.

9020. (*Chairman.*) What do you say about it?—In Scotland it was held in the High Court that if the owner and men agree to a standard weight of, say, 10 cwts., that the owners are not bound to pay for anything above that 10 cwts., and although not actually decided, it was rather indicated that the owners were not even compelled to weigh, and the checkweigher was not allowed to know how much there was above 10 cwts. I think that is wrong, and whether the owners pay or not, the checkweigher ought to be allowed to have the full weight.

9021. (*Chairman.*) I think we are rather arguing in the air about this. We must know something more about it before we can go into it?—That is all I want to say about it.

9022. (*Mr. Smillie.*) I wanted to ask you with regard to that point. What is your experience in Scotland as to what an agreement really means in the sense that the High Court held it. Is not an agreement in Scotland if any employer puts up a notice and the men go down to work under that notice, whether they agree with it or not. That is held to be an agreement?—I think that it so, but if men go to work under it it is only reasonable to say they do agree with it.

9023. Do you think it reasonable if men protest against a thing, and still are forced to work under it, that that is an agreement?—They are not forced to work under it.

9024. You are aware that in the Home Farm, agreement. You are aware that in the Home Farm, Earnock, and in the Eddlewood case, that the men protested against it, and refused to agree to it, but they worked under it?—I think that is so.

9025. (*Sir Lindsay Wood.*) In Northumberland and Durham the inspection by the men under Rule 38 is generally carried out?—Yes.

9026. Do they not also inspect after fatal accidents?—Generally, nearly always.

9027. Have you known cases in which the general inspection, under Rule 38, has been carried out, and then fatal accidents have occurred within a month after that?—Yes, I have known cases.

9028. Of the two coming together?—Yes.

9029. The owners have not objected to a second inspection?—No.

9030. Do the owners give facilities for the inspection after an accident?—Yes.

9031. Then, with regard to fines, I understood you to say that you prefer prosecution?—I think prosecution is more likely to stop the offences.

9032. On account of being more widely known?—Yes.

9033. Would posting a fine at a pit-head or anything of that kind do?—That would give a certain measure of publicity. It might have the necessary effect.

9034. How would the miners like that, in your opinion?—I suppose it would have to be put to them when they were fined as to whether they would agree to this posting up. I do not see that they would object.

9035. Prosecution means heavy expense to the miners?—And some expense and trouble to the owner, too.

9036. By taking away officials for the proving of the cases?—Yes.

9037. That is all detrimental to the owners. Except in severe cases would it not be better to have rather larger fines, perhaps then prosecutions?—The system of private fining does not commend itself to me. It is only as a matter of convenience perhaps.

9038. It can only be done by consent?—Yes.

9039. Do you think the system in Durham and Northumberland maintains a sufficient amount of discipline?—Not always; for instance, I was at a colliery the other day where they had a great deal of trouble with men riding in the sets, and they were determined to stop it, so that every case was taken before the Magistrate, and there were a good number so dealt with until they had stopped it. If they had gone on with fining they might be fining yet.

9040. As to the examination of places before the stone men and shifters go in, that only needs a word in the Special Rule?—Yes, it would require more than a word. I do not know where you would put the word in. I would suggest you might make it "Deputies and chargemen" or "Deputies and examiners," and then amplify the word "hewers" to "shifters and stone men." That would do it probably.

9041-5. It wants a comparatively small alteration?—Not a great deal of alteration.

9046. The system is already carried out in most of the collieries?—It is to a great extent I think, but I think there are cases where it is probably not carried out as it ought to be.

9047. As to coaldust; what is the danger with coaldust in a mine where there are no naked lights and no blasting?—The danger of explosion happening and communicating itself to the coal dust.

9048. How would an explosion happen if there are no naked lights and no blasting?—A defective lamp or a man striking a match.

9049. Would a man striking a match cause an explosion of coaldust?—He might cause an explosion of firedamp, which might communicate to the coaldust.

9050-1. It would be a breach of the Rule to have a match or to strike it?—Yes, and I would make it a breach of the Rule to have coaldust.

9052. Can you remove coaldust by any means to prevent these explosions?—I think so.

9053. In any mine?—Not over the whole mine. I would say that if the main roads were kept free from coaldust you could let the working faces go. There is not as a rule much fine dust there.

9054. In the main roads are there likely to be explosions of gas?—The most unlikely places for explosions of gas in the whole mine.

9055. How do you get your explosions of coaldust there?—Supposing you have a train of dust in your landing, and then dusty roads beyond that to the face, and you get explosion from gas at the face, then it comes out by this dusty horse road, we will say, to the landing, and then out to the shaft, as has occurred.

9056. Everybody admits if you have an explosion coaldust will assist it?—Yes.

9057. You want to do away with the coaldust?—The coaldust collects gradually over a number of years. If people would take a little precaution to prevent that gradual accumulation, it could be done. If the thing was properly tackled I have no doubt it could be done.

9058. I want to drawn your attention to General Rule 3 about the fan. Do you think that rule affected putting underground fans in?—Yes, I think you might have a fan underground, but it might be no use after an explosion.

9059. Has that rule ever obviated any fan being put underground?—That is so.

9060. I must admit that it is the first time I heard of the objection to it. The objection was that the main ventilation should not be disturbed by an explosion?—Yes.

9061. A fan in-bye would not disturb the main ventilation, but would be only for a certain district?—No.

Digitized by Google

Mr. J. B. Atkinson.

29 Nov. 1906.

9062. The intention was the fan should be kept at work on the top of the surface. An auxiliary fan in a district destroyed or not destroyed would not do any good or harm otherwise?—No.

9063. I should not at all hesitate about putting in an underground ventilation fan even under the present rule?—There seems to be some doubt about it.

9064. I think you said something about the ventilating of two different mines under two different managers with one set of shafts?—Yes.

9065. If there were proper regulations, and a proper system carried out, would that alter your opinion?—My point was, I think, there should be one manager for one system of ventilation; that would meet it.

9066. Would that not leave a large area to one manager?—Yes, but if you have a large area depending upon one system of ventilation, all the more reason for having it under one head.

9067. You would not have a very large area under two managers?—No, I think it is objectionable.

9068. Do you think there would be interference between one manager and the other?—There has been one case. I cited one case in Scotland.

9069-72. In large collieries you have large areas for workings, and in that case you may have the downcast shaft in one man's charge and the upcast in another man's charge?—It was about the time of the Jameson raid, and I suggested to the manager that he was committing an illegal act like Jameson.

9073. I thought it would depend on the system of management which was carried out between the two?—It is all right where you have a skilled mining man at the head, but I say that skilled mining man is the man who should be the manager.

9074. Not the agent?—He might be agent as well as manager.

9075. He might be, but it would not be advisable with two large mines working?—It does not seem to matter how large the mine is as long as the system of ventilation is common. It seems to me all the more reason to have one head.

9076. It depends what you call "common"?—Where you have one upcast and one downcast.

9077. But if there were two distinct air courses, do you see any objection?—Yes, one shaft must be entirely under one manager, and the other shaft under the other manager.

9078. What is the objection?—Supposing something happens in the shaft of the mine belonging to the one manager, the man in the other mine has no means of controlling it.

9079. He would not have the control?—No.

9080. Probably if there were two managers they would have more control?—At any rate, one manager would be more responsible.

9081. With respect to the proposal of having a system of testing types of lamps, I think you said you thought an inspector should have supervision over it?—I think it ought to be in the hands of inspectors as representing the Home Office, owners, and miners generally.

9082. I should have thought that the inspectors had sufficient work without that?—The inspectors ought to be associated with all questions of that kind very closely.

9083. The idea was to adopt a similar system as the Home Office has for testing explosives?—The inspecors are associated with that, and ought to be very closely associated with that.

9084. They are consulted in some way?—I think there are two inspectors on the committee who have charge of it.

9085. With respect to plans, you said that many of the plans were made by young professional men?—Yes.

9086. Are there not important collieries where it is necessary to have a good plan carried out by surveyors?—Yes, many of the large collieries have a man who is a competent surveyor, but none of them are what you would term certificated surveyors.

9087. Is there a system of certificates for surveyors?—I do not think there is any.

9088. Then they could not get them?—Not as regards mining plans.

9089. You say the colliery owners call in other professional men when they get near the boundaries?—Very often they do.

9090. Is that not due to extra caution?—I think it is a very wise step to take in any case.

9091. Many plans are kept on the Ordnance Scale?—Yes.

9092. Those plans are by no means accurate as published, owing to the contraction of the paper on which they are printed?—I do not know that. I know plans are inaccurate very often; when I have found old workings they may be a chain or two out.

9093. A chain is rather a large error. Is it not the practice in many collieries to have a special survey made from the Ordnance Surveys?—I should say it is. I cannot say that I know it personally.

9094. It has been recommended that there should be boreholes under sea workings?—Not in all cases. It is the only means of testing the solid amount of cover you have. At Sydney, in New South Wales, where they have a very fine seam close to the sea, a lot of questions have been raised as to the safety of it. That is what they did there—bored upwards.

9095. (*Mr. Wm. Abraham.*) I gather from you that there are some observations you would like to make upon the administration of the Act or upon inspection?—Yes. It is more on the question of the view to be taken of the scope of inspection. I say that if the Government proposed to see by actual inspection that the mines are always safe, it would take an enormous number of inspectors. This is clearly impossible. If each and every part of the mines under the Coal Mines Act in the Newcastle district were inspected once a year I calculate it would take ten inspectors—doing that work alone, not attending to the routine work of the district. Once a year would only test the condition of the pits; it could not guarantee safety, as the conditions constantly alter so quickly. I think it would be very undesirable to take the responsibility off the managers, and that would be done if you carry inspection by the Government too far. There are hundreds of officials looking after the safety of mines daily under the managers. Now, then, I thought I would ask myself a question as to the actual accidents that have happened in the district where I act, since I took charge, where more than two lives were lost, and I will just ask as to whether inspection was likely to have prevented any of those accidents. I have a list here. I do not know that I need go over it; but I am bound to say I do not think inspection by Government inspectors would have prevented one of them. I do not mean to say that it might not in some cases; but, in the vast majority of accidents, if you had any amount of Government inspectors, I do not think you would prevent them. Of course, the idea of going, before accidents happen, to prevent them is a very reasonable one, but I do not think it is practicable. One thing often strikes me about inspection, and that is, with the public railways, where we are all dependent for our lives, more or less daily, there is no system of periodical inspection by Government officials. It seems to me that we have concluded that it is safer to leave the working in the hands of the officials of the company. I thought of throwing out a suggestion that the Government might supply funds for local inspection of mines, say, once a year. I believe in some districts there is a difficulty about getting funds; but, supposing the Government said: "We will pay for the local inspection of each colliery once a year," that might help to meet the difficulty; I calculate that about from £10,000 to £20,000 annually would cover that. Then a very important consideration to bear in mind, as regards the duty of inspectors, is the investigation of accidents, and bringing home responsibility, and, if necessary, prosecuting. If the inspector himself is responsible for the safety of the mines, as would be to some extent the case if you increase inspection very much, he cannot be an impartial investigator, and it is as an investigator that his chief usefulness lies. If the managers know that any accident will be fully inquired into, and that prosecution will follow if neglect is proved, that is one of the greatest safeguards to life, and it is a duty which an inspector can at present perform. If he is expected to see that every man in his district

Digitized by Google

is safe, it is a duty which he cannot at present perform. If the number of inspectors were so increased that it could be performed, his function as an impartial investigator would be impaired. An inspector is a mining policeman. Make him responsible for accidents and offences against the Mines Act, and he will incline to gloss over matters. Now, as a sort of object lesson, I might mention a case that occurred about nine months after I took charge of the Scotch district. It was the biggest accident that I have had. There were sixty-three lives lost by fire in the mine. First of all there was a cry raised that there were not sufficient shafts. The lawyer representing the miners called upon me, and told me that I was considered to be on my trial. An advocate was appointed with an inspector from another district to conduct an inquiry into the matter. I found my position was such that I either had to keep away from the inquiry altogether, or appear as though I was on my trial. I represented matters to the authorities, and it was amended to some extent, so that I was allowed to sit with the Commissioners, but took no part in the inquiry. I was not asked to make any special report on the matter, and the actual cause of the disaster was not appreciated by the Commissioners. It was a very interesting case. It was a case of what has been termed a ventilation paradox; but it was not appreciated by the outsiders, as it were, that were called in to investigate and report on the matter. The case was at Mauricewood. I think that is all I have to say from a general point of view.

9096. In your opinion what is the primary object of rules and regulations in providing for the conduct of mines?—To save life.

9097. What is the object of inspection?—The same object—to save life.

9098. Is it after a life is lost that that object is to be carried out, or ought not something to be done to try and prevent the cause of loss of life before the lives are lost?—Yes, if you can.

9099. I am asking now, not if you can, but I am asking you as a question of inspection?—Yes, it is much better if he could do it before the accident happens.

9100. Then if that cannot be done by the number of inspectors at present engaged, is it not, in your opinion, necessary that a sufficient number of inspectors should be engaged to do it?—No.

9101. Then of what use is your opinion with regard to inspection at all?—It is what I have stated.

9102. And as you have stated, it is for the saving of life?—Yes.

9103. You have stated also that to carry out that object inspection should be made before accidents happen?—I say it would be desirable to do so.

9104. Is not saving of life the object?—Saving of life is the object.

9105. How is the object to be attained?—My point is that you cannot, without an enormous number of inspectors, attain the object in that direct manner that you would indicate, and that I agree would be desirable.

9106. But our business here is to see what can be done for the saving of life?—Yes.

9107. If, then, the saving of life is the object of the rules and of inspectors, is it not necessary that a number of inspectors should be appointed to carry out that object?—Have you considered the enormous number that would be required?

9108. Never mind the enormous number. If it is the object to save life, and you have said that is the object, then you have no business with the number.—Very well, we will take it in that way. Then I say you would require as many inspectors as you have officials at present acting on behalf of the owners.

9109. Then you say that in your opinion it is an impossibility to carry out the real object of the rules and regulations of inspection?—No, I do not say that at all.

9110. You have said if that is done it would take the responsibility off the managers?—It would have that tendency.

9111. If that is so, and the number of inspectors are not able to inspect in such a manner as will prevent loss of life, what is the use of inspection at all?—The use of inspection is, as I have indicated, that you have a certain number of rules and regulations, which experience has proved are necessary, laid down. You have certificated managers appointed to each pit to enforce these rules, and a number of under officials to carry them out. The inspector of mines has to see that those are carried out, not by actual examination of every working place—he cannot do that—but by impartial investigation, and you cannot very well avoid the investigation after the accident.

9112. Then the investigation is after the life is lost?—That is an unfortunate thing. It would be much better to do it before, but do not you see the difficulty?

9113. It is not a question of difficulty to us here; our question is to find out what is the remedy. I am asking your opinion about what is necessary.—Yes; then if you replaced all those officials who are acting on behalf of the owners by Government men—by Government inspectors, as it were—you would still have accidents.

9114. You are not here to defend the owners; the owners are here to defend themselves.—I am here to defend nobody. I am here to speak my honest opinion of the scope of the inspection.

9115. You have stated that the object of the rules and regulations is to save life.—Yes.

9116. And the object of inspection is to see that those rules and regulations are carried out?—Yes.

9117. I am putting the question to you: ought not that to be done before the lives are lost, and not after; and you have said it is impossible because of the number of men who would be required?—Yes.

9118. But if there is a life lost, is not that one life to have a greater consideration than the cost?—The cost must come in somewhere, you know.

9120. From your standpoint you have given us the object of the law?—Yes.

9121. Now you say it is impossible to carry out that law because of the cost of appointing a number of inspectors to see that the law is carried out?—No, I do not know that I said that. What I say it that collieries could not be worked if we carried precautions beyond a certain point. The legal precautions must be carried out, of course, at whatever cost; but you might go further and provide additional precautions to such an extent that you could not work the collieries because the cost would be so great. You must admit that cost comes in to a great extent.

9122. If I understand you aright, your basis is that each colliery should be examined once a year?—Each colliery in the district is now, with very few exceptions, examined once a year, but not the whole of it. The examination of the whole of each of the collieries once a year would take, as I have stated already, 10 inspectors, and that would only be once a year.

9123. All that you can do now is to examine portions of the collieries in your district once a year?—Yes, that is all.

9124. Am I to understand from you, as an experienced inspector, that in your opinion that is a sufficient inspection?—I think the results have been fairly good. As you know, the death rate has declined steadily for a number of years. One must judge of it by results.

9125. The results of inspection after accidents and after the lives have been lost show, you say, that there have been less accidents and less lives lost?—Yes, you may put it in that way.

9126. Then if, in addition to that, you could have had a number of systematic inspections before those accidents, is it not probable that the loss of life would have been less?—I tried to illustrate it by taking all those accidents where more than two lives had been lost in my district since the year 1902, and I have told you that I do not think that inspection would have prevented one of them.

9127. You are not answering my question?—I think I am.

9128. You have admitted that inspection after the accident has been the means of reducing the number of accidents and the number of lives lost?—Yes.

9129. That being the case, would not inspection before explosions and accidents had taken place, in addition to the one afterwards, be the means of saving

Digitized by Google

Mr. J. B. Atkinson. 29 Nov. 1906.

more lives and reducing the number of accidents?—I have tried to answer that view of the matter by taking all accidents in my district where more than two lives have been lost since I came to it.

9130. But would you mind answering my question?—You have asked me, as inspection and investigation after accidents has resulted in this reduction of the death-rate, would a large amount of inspection before not have resulted in still greater reduction? I do not think so.

9131. Then, it is not your object, as you have said to us, to see that the rules and regulations are carried out?—It is our object.

9132. But you do not think it is your business to do so until an accident happens?—It is our business to do so before an accident happens, as far as we can.

9133. Of what avail will it be if it will not increase the safety of life?—It is our duty; it is our instructions; and we carry them out.

9134. It is your duty; and now, because of your number, you are not able to carry out that duty?—Clearly not to the extent you mean; that is to say, we are not able to take the place of these many hundreds and thousands of officials.

9135. You are clearly of opinion that prosecution is a more effective deterrent to breaches of discipline and breaches of rules, etc., than fines?—Yes.

9136. I think you have told us that you would modify the rule that requires lamps being placed all through a mine where it is necessary to place them in one part of the mine?—Yes.

9137. Does not the case which you have cited of that explosion prove that it is possible where the lamps are put in one part of the mine for a naked light to be the cause of the explosion in another?—Which explosion? Do you mean the one at Dinnington.

9138. Yes?—Yes.

9139. Having that in view, are you still of the opinion that it is safe to have naked lights and safety-lamps used in the same mines?—Yes.

9140. Supposing in that mine it were necessary to use safety-lamps, and naked lights were used not far off, would it not happen sometimes that there would be gas there, and would it be safe?—That would be a danger.

9141. Will not that gas be forced against the air?—If it were forced against the air it would probably go where the safety-lamp was.

9142. If it were forced against the air would it not go probably where the naked lights were?—No; with the air it would go to the naked lights.

9143. I do not know exactly the position of the colliery which you had in your mind; but I am asking as to what happens frequently when gas comes down; it spreads all ways?—Probably; but mostly with the air.

9144. I do not think that is our experience. Of course, I am taking your answer; but if it happened then, there is a probability that it would come in contact with the naked lights?—Yes.

9145. Then, are you of the opinion that it is safe to use naked lights and safety-lamps in the same mines?—My point is that the rule, as it stands, would make the manager very reluctant to put in any safety-lamp at all. He would say, "I have got this leading place, and we do not see any gas in this pit; but, as a matter of precaution, I would like to put a safety-lamp in."

9146. If you had been here with us, you would have learnt (very likely you know it now) how very reluctant the managers are to use safety-lamps.

(*Mr. Ratcliffe Ellis.*) And the men.

9147. (*Mr. Wm. Abraham.*) Yes, and the men—where they forget themselves. Because of the reluctancy of the manager to place them after the inspector had advised them, explosions occurred. Now, after that, are you still of the same opinion?—I have a particular class of mines in my view, and you, perhaps, have a different class. Probably, in your mines, I should have said there should have been safety-lamps all through. We have in Northumberland a large number of steam-coal collieries, where there is very little gas and very little dust, and there has hardly ever been a big explosion. In a lot of these they work with candles; and if a manager there wants to put up lamps in one or two places he would have this rule staring him in the face, and he would say, "I should like to put in lamps there; but, if I put in lamps there, they would have to go all through a big district."

9148. Do you defend that reluctancy?—I can see that it is quite natural.

9149. You have said that the larger number of the rules ought to be made applicable for all the country?—They should vary according to conditions.

9151. Now, let us come back to that mine again where the question of raising apparatus arose?—You mean the mine that belongs to the Bedlington Coal Company?

9152. We find nothing was done during the period between the two accidents to have this evil remedied?—I think you are wrong there.

9153. The statement is wrong, then?—I will tell you what was done. They drove a place towards the workings of another pit of the Bedlington Coal Company. They only had about 10 ft. of coal to take off, so as to make a connection to some other pits, and then the Courrières explosion occurred, and made them rather hesitate about going on, as in that explosion it appeared that having several pits connected underground had increased the loss of life.

9154. Driving from that head of coal was what the workmen asked to be done?—I believe so.

9155. If they say it was not done, they would be correct?—Yes, it was not actually done; but the place was so nearly holed that it could have been put through in a couple of shifts.

9156. But it was not done?—My answer is, it was very nearly done.

9157. Since it came under your direct notice, has there been anything done to improve the apparatus since the second accident?—Not to my knowledge.

9158. Have you brought that before the Home Secretary?—No, I do not think so. I said that I would bring it before this Commission, and it has been brought before the Commission. You must understand that we do not bring matters before the Home Secretary where the law is clear. There was no breach of the law, and I had no particular reason for bringing it before the Home Secretary. There are many other places in exactly the same position.

9159. All the worse for those places then?—But you must understand there was no breach of the law.

9160. I put it to you, in your opinion was that kibble a proper apparatus, according to Section 16, and you said, No, that in your opinion it was not a proper apparatus?—It was a mistake on my part if I made that answer. What I intended to convey was that I do not think it is as safe a means as ought to exist, but I did think, and I still think, that it was in accordance with the requirements of the Act.

9161. I admit you said that, but, in answer to my question, you said also that it was not always an efficient means of escaping?—I think I instanced a case of fire.

9162. That being your opinion, what have you done since in order to get that state of things remedied?—I have brought it before the Commission to see if we could get the law altered.

9163. (*Chairman.*) As far as you know, there was nothing done?—I do not think I called the attention of the Home Office to it.

9164. (*Mr. Ratcliffe Ellis.*) There was no breach of the law?—No breach of the law.

9165. Therefore no necessity to bring it to the attention of the Home Office?—That is so.

9166. The policy of the Mines Act is that the mine should be under the control and direction of a manager?—Yes.

9167. Section 20 of the Act provides: "Every mine shall be under a manager, who shall be responsible for the control, management, and direction of the mine"?—Yes.

9168. That manager is to have a certificate qualifying him for that position?—Yes.

9169. The Act contains a number of general rules for the guidance of the manager?—Yes.

9170. And there is a provision that special rules

Digitized by Google

shall also be made with the sanction of the Home Office, to form part of the Act of Parliament, and the special rules are for the discipline of the mine: "There shall be established in every mine such rules (referred to in this Act as special rules) for the conduct and guidance of the persons acting in the management of such mine or employed in or about the mine as, under the particular state and circumstances of such mine, may appear best calculated to prevent dangerous accidents, and to provide for the safety, convenience and proper discipline of persons employed in or about the mine"?—Yes.

9171. That is the policy of the Mines Act?—It is part of the policy of the Mines Act, as regards management.

9172. As regards management, it must be left with persons who are made responsible for the safety and the general conduct and management of the mine?—Yes.

9173. The duty of the inspector is to see that those duties are carried out?—That is a very important part of his duty.

9174. Do you disagree with the general policy of the Act that you must depend mainly upon the management of the mine for the safety of those employed there?—Clearly with the existing staff we must.

9175. Do you agree that that policy is working well?—I have said it has not worked badly.

9176. Do you think it desirable that the responsibility of that manager should be lessened by giving the impression that the inspector was there, in order to manage the mine in effect?—Certainly not.

9177. Do you think that that would be prejudicial to safety?—I think it would be.

9178. If you were to have a sufficient staff to undertake the management of the mine you would want even a great many more than you have suggested?—Far more than the ten that I have suggested.

9179. So that with reference to the inspection by the Government, in your view are yourself and your two or three inspectors sufficient in order to see that the Mines Act is carried out within your district?—In a general way only. We cannot say that every clause of the Mines Act is carried out every time at every colliery. That is clearly impossible.

9180. And you could not do that with ten inspectors?—No, nor even with 100. We can test the quality of the management and the general condition of the mine.

9181. May I go so far as this: that in your judgment the proper position of a Government inspection is secured at the present time?—Yes, I think it is.

9182. You said that you might suggest an inspection once a year by somebody?—I suggested it in two connections—either on behalf of the Government or on behalf of the miners.

9183. By whom would that inspection be made?—The inspection on behalf of the Government would, of course, be by the Government inspectors. On behalf of the miners it would be by local inspectors appointed under General Rule 38.

9184. Would you say you would make it compulsory for the miners to appoint representatives?—No, I would leave it optional.

9185. Would you alter the law, because they can inspect once a month if they like?—My suggestion was, allow them to inspect once a month if they liked; pay for an inspection of every mine once a year—the Government to pay for it.

9186. Do you think that would be a desirable thing when you have got a staff of inspectors?—It is just a suggestion for consideration; I do not recommend it.

9187. You gave us a reason why, in Cumberland, there are very few inspections by the workmen, and in Northumberland and Durham a great many. You thought that was because the miners were better organised?—No, I did not think that. The miners are fairly well organised in Cumberland, but still they do not take advantage of the rule.

9188. It is not the fault of the miners' organisation?—No.

9189. Take Lancashire. The miners are very well organised in Lancashire?—Yes.

9190. And this inspection is almost unheard of?—Yes.

9191. So that cannot be the reason. You said that you thought the discipline was better in districts where these inspections took place. Have you fault to find with the discipline in Lancashire?—I do not know Lancashire, except the Hematite mines; but I think the discipline is better in Northumberland and Durham than in Cumberland.

9192. With reference to prosecutions of managers, what guides you in deciding whether you will prosecute a manager or not?—The gravity of the offence, in the first place.

9193. But, generally, prosecutions against managers are not for matters as to which they are personally in default. I will give you a case. I see the first prosecution you have in your list of prosecutions in the Annual Report is "Failing to provide refuge hole," and you prosecuted the manager; but I suppose the underlooker would be the person who was directly responsible for it?—It was a small pit, and the manager was really the underlooker there. He was down the pit every day; he was really responsible in that case.

9194. As his Lordship has put it to you, if you found certain things which ought to be done by the men were not done, and were constantly looked over, then you would prosecute the manager for not carrying out the rules?—It has often been threatened, but I do not know that there has ever been a prosecution on those grounds.

9195. With reference to ventilation, I think your view is that no work should be carried out where there was an indication of gas in the air current?—Yes, in the air current.

9196. Would your view be met by leaving General Rule 1 as it is and altering General Rule 7? You see you have given instances where there might be a little gas found, a cap, which could not be prevented, but which would be removed as soon as possible; you would not fine a man for that?—No.

9197. But if you make the alteration suggested in General Rule 1, he would be liable to be fined in such a case?—Yes.

9198. Would it meet your view if General Rule 1 was left as it was, but the safety rule—General Rule 7—was stiffened up a bit by providing that where a cap was found in the air current then the men must be withdrawn?—You mean the General Rule for the withdrawal of workmen in case of danger?

9199. Yes. Would not that meet your view?—Yes, I think it might. That would mean, of course, that no man was allowed to work in an air current containing a cap, so soon as it was discovered to be so.

9200. General Rule 7 provides: "If at any time it is found by the person for the time being in charge of the mine, or any part thereof, that, by reason of inflammable gases prevailing in the mine, or that part thereof, or from any cause whatever, the mine, or that part is dangerous" —— Now, instead of leaving a discretion as to whether it is dangerous or not, and whether the quantity of gas is sufficient to make it dangerous, put it: if a cap is found in the air current the men should be withdrawn?—Yes.

9201. Now, with reference to the division of the mines into parts, if you look at the Act of Parliament you will see Section 19 provides: "Where two or more parts of a mine are worked separately, the owner, agent, or manager of the mine may give notice in writing to that effect, to the inspector of the district, and thereupon each such part shall, for all the purposes of this Act, be deemed to be a separate mine." Now, if he gives that notice, and it is accepted by the Home Office, then he has no option, except to appoint a manager for each part, because the following Section, Section 20, says: "Every mine shall be under a manager." Now, he has given notice which constitutes this part of the mine a separate mine; and, therefore, it is not for his own benefit but to comply with the Act of Parliament that he appoints another manager?—He needs not do that. One manager can manage two mines.

9202. Look at Section 20: "Every mine shall be under a manager who shall be responsible for the control, management and direction of the mine."—

Digitized by Google

Mr. J. B Atkinson.

29 Nov. 1906.

Yes, but one manager can be manager of several mines.

9203. That may be so, no doubt; but in appointing a manager he has to comply as he thinks with this provision of this Act of Parliament; and, having constituted this a separate mine, he then, under the following Clause, appoints a manager to it?—Yes.

9204. Your suggestion, as I understand it, is that this should be altered in such a way as to provide that where a system of ventilation is common to both the separated portions, one manager should be in control of both?—Yes.

9205. With reference to the advertising of the special Rules, there is a provision, is there not, that not only have they to be posted up at the colliery, but that a copy has to be given to the men?—It is not "has to be given"; but "has to be given if applied for."

9206. Is not that the same thing?—Not quite.

9207. Sub-clause (1) of Section 57 is: "The owner, agent or manager of the mine shall cause the abstract and copy of the rules, with the name of the mine and the name and address of the inspector of the district, and the name of the owner or agent and of the manager appended thereto, to be posted up in legible characters in some conspicuous place at or near the mine, where they may be conveniently read by the persons employed; and so often as the same become defaced, obliterated or destroyed, shall cause them to be renewed with all reasonable dispatch." Then Clause 2: "The owner, agent or manager shall suply a printed copy of the abstract and the special rules gratis to each person employed in or about the mine who applies for a copy at the office at which the persons immediately employed by the owner, agent or manager are paid"?—Yes, he has to apply for it.

9208. But there is no difficulty in anybody employed there getting a copy, if he chooses, of the abstract?—No.

9209. Your view is that the object of Special Rules is to detail the duties of particular persons?—Several views may be taken as to special Rules. That is one important feature about them. Another is to provide for some peculiar form of danger, owing perhaps to some physical differences of a particular set of mines.

9210. That is another object, of course; but I take it that there are a great many rules that are common to every mine in the district. The object is, is it not, in dividing them in that way, is to bring them directly under the notice of each special class of persons?—That is no doubt one object of the special Rules.

9211. And you think that is very desirable?—I think it is.

9212. Have you any Special Rules in your district for the surface?—Yes; we have Rules for banksmen, for instance, and winding-engine men.

9213. Have you any rules for the railways on the surface, or the sidings?—No, I think not.

9214. Do you think it desirable that there should be something done in that direction?—I think a few Rules about the sidings are desirable.

9215. That might be done usefully?—Yes, that would be much better in an Act of Parliament as a general rule rather than putting it into Special Rules.

9216. Of course, there is room for it in the Special Rules for the safety of the men?—Yes, you might legislate by Special Rules to some extent in that way, but it is a question whether that is really the true object of Special Rules.

9217. You think that if it is common to a whole district it had better be by a general Rule?—Yes.

9218. With reference to the watering, have you any very deep mines in your district?—About 300 fathoms is the deepest.

9219. And is it very hot?—It gets up to about 85 or 86 degrees Fah.

9220. Are those mines watered?—They are watered on the bottom.

9221. Do you think the result of extensive watering of mines of great depth, where there is great heat, would be to make the working a good deal more oppressive to the men than if the heat were dry?—Yes, that is an objection to the watering.

9222. Do you think that that is a serious objection?—No, I do not think so.

9223. Are there other objections to watering that occur to you?—Yes, there is the movement of the strata. No doubt there would be a difficulty as to that in some cases.

9224. Your view evidently is in the direction of rather removing the dust than of preventing it?—I would not lay down hard and fast rules as to how it is to be done. I would rather say what has to be done, and let each owner make his own arrangements.

9225. Now, as to the examination you spoke of, I noticed in the questions put in the examination in your district there is one very important question which was asked, as to which, if you get any satisfactory evidence, it might be useful to this Commission. "How would you deal with the coal dust in a dry and dusty mine"?—Yes.

9226. I do not know whether you have any satisfactory information on that question?—The members of the Board, you know, do not see the answers.

9227. But they see the papers. They might see them?—I do not know that they see the questions even before they are put.

9228. (*Mr. Enoch Edwards.*) I gathered from your answer to his Lordship that you have had a longer experience as an inspector than any of the present inspectors?—Yes, there were a number of us appointed together, but, as a matter of fact, I was appointed before any that are now on the staff.

9229. You have suggested that you thought the period of retirement should be reduced to 55 years?—Yes.

9230. A rule of that kind would be a good thing for all of us?—I daresay it would.

9231. We were informed that there are 12 inspectors and 26 assistant inspectors?—Yes, and one superintending inspector.

9232. I think it was your brother, who was here, who told us (and it is not unnatural that we should have a similar statement from you) that he thought there was a feeling that the assistant inspectors had not the prospect of being quickly promoted?—Yes. That is one of the reason I give for allowing chief inspectors to retire a little earlier.

9233. Because it is obvious, if there are 26 assistant inspectors and 12 inspectors of the usual long-lived race of inspectors, the chances of quick promotion are remote?—They are much more remote, for instance, than when I was appointed, when there were only 12 assistant inspectors to 12 chiefs.

9234. What is your opinion about the districts being cut up?—There is no doubt it is an advantage to have as many men as possible directly responsible, practically, as it were, for a district. A man takes more interest in his work when he is directly responsible for it. I am not altogether in favour of multiplying the assistant inspectors.

9235. There are 12 districts. You have 26 assistant inspectors. The size of those districts must necessarily make it somewhat expensive, and must take up a lot of time in travelling?—In some districts that is so, but not in mine particularly.

9236. It is pretty clear that in some districts a lot of time is consumed in travelling. Now, supposing you created out of them six or eight other districts, you would have a better chance of promoting your assistants, and a man would get round his district much easier and be able to give more time to work rather than to railway travelling?—Yes.

9237. So that, on the whole, there is a good deal to be said for that?—Yes.

9238. You might have an equal number of asistants and inspectors, as was the case when you began?—Yes.

9239. Do you think that would be an improvement?—I think the more men you have directly responsible the better the work.

9240. I understand you would be rather in favour of having an equal number of inspectors and assistants?—I think I would.

9241. It seems to suggest itself that the work would be done certainly as well as it is being done now. You would give an opportunity for more promotion among

Digitized by Google

the assistants, you would spend much less time in travelling to and fro, and there would be more time for actual work?—Yes.

9242. In dealing with the question of inspection by officials of the colliery, do you think, as we have it now in law and practice, that the collieries are sufficiently inspected by officials?—No. I think I said that I thought two inspections during the course of a shift would be an advantage, in addition to the inspection before commencing work.

9243. As I understand, in the North the term "shift" has rather a different application. Do you apply your remark to the shift of hewers?—Yes, to the shift of hewers.

9244. That would mean, then, six inspections in a day?—Not six, because the back shift come in without any interval. So that there is no inspection before they come in.

9245. There would be five inspections?—There would be five inspections every day.

9246. At present you do not think it is satisfactory?—It is satisfactory in Durham and Northumberland, where you have a deputy overman, because, as a matter of fact, there are usually that number of inspections made. You see the deputy has only, I think it is said, from 10 to 16 men, or something like that, to go round; it is not like some of the districts, where a man may have to examine for 60 men.

9247. Would his duties include the inspection of timbering?—Yes, and he does a good deal of timbering himself.

9248. Are there a sufficient number of these men engaged to do this work in the North?—As a rule there are.

9249. They can give attention to inspection?—They have time for continuous inspection, and they are actually in each working place perhaps from a quarter of an hour to half an hour, working in the place.

9250. So that in the North it is not a question of cost; they appoint sufficient men to do the work?—I think so.

9251. You think it is done?—Yes.

9252. When you were asked with reference to the timbering rules, you said you did not understand them yourself?—Not the rule that is in force in the Durham and Northumberland portion of my district.

9253. You do not understand it?—I do not really understand what it means.

9254. Would the men be likely to understand it better?—No, I should think not.

9255. Will the managers understand it?—The managers do understand it to some extent; at least, they all put a construction on it; it is not sufficiently clear for an important rule.

9256. You say you do not understand it yourself?—No.

9257. And you say you do not think the men understand it?—No.

9258. Does anybody understand it?

(*Mr. Ratcliffe Ellis.*) These rules are rules which were drawn up between the employers and the men in the different districts. At least, that is so in Lancashire.

(*Mr. Enoch Edwards.*) I am not sure that these rules have been drawn up in the way suggested?—I do not think in the North of England the men's representatives were consulted at all in the matter, because one of them told me he was rather annoyed at not being consulted on these timbering rules.

9259. I think you said something about the distance between prop and prop?—Yes.

9260. That was one of the things that puzzled you?—Yes.

9261. I suppose they have some well-defined distances which they practically deal with?—They all have to fix a distance. We will say, they say, 4 ft. or 6 ft. The difficulty is in the application of that distance.

9262. While we are dealing with this question of timbering. We have heard a lot about the Courrières Mine. At the Courrières Mine they have one uniform system of timbering?—The point was that they drive the supports right forward to the face.

9263. You have had considerable experience in Scotland and the North of England?—Yes.

9264. In your judgment, is uniformity in timbering possible?—A certain degree of uniformity is possible. Abolute uniformity is not.

9265. Much has been said about having one set of rules. You have had experience in districts as varied and complex as most districts in this Kingdom?—Yes.

9266. Is it possible in the North to have one uniform system?—In Scotland we had a lot of those rearing measures—nearly vertical, and all sorts of inclinations.

9267. Would it be possible to frame one rigid set of rules to deal with all the timber all over the Kingdom?—No; the timbering question is a difficult question.

9268. When you were dealing with the Special Rules, you said they were cumbersome. That was the term you used?—There are far too many of them, I think.

9269. I understood you to say that the men object to these rules?—Not to my knowledge.

9270. Had the men been consulted about them at all?—I do not think the men were consulted—at least not in my districts—that I am aware of.

9271. Speaking generally, in framing rules, is it not to be remembered that in all mining the collier is a contractor?—More or less.

9272. And he depends for his living upon the coal he gets?—Yes.

9273. Then, I put it to you, in framing rules, is it not a reasonable thing that in all cases the men should have a voice in framing them?—Oh, certainly; I have always taken up that position.

9274. (*Mr. F. L. Davis.*) Have you much shot-firing in your district?—Yes, a good deal—particularly in Northumberland.

9275. Would you forbid in all cases shot-firing during a shift?—No, I am not prepared to go that length.

9276. With regard to the question of watering, I understand you to say that you do not go so far as to say that watering is the only means of removing dust?—No, certainly not.

9277. If I understood you correctly, the position you take up is that the dust must be removed by some means, whether it is by watering or by some other means?—Yes, I have a note here of the means that have suggested themselves. I will read them over.

9278. I shall be very glad to have them; but first of all, I think generally you say you do not think it is advisable to state how the thing should be done, but you say what should be done is the removal of the coal dust?—Yes, the methods consist of watering by pipes and tubs; watering sets at landing; prevention of screen dust getting into the down-cast shaft; dealing with dust blown from tubs while being raised in the shaft; brushing dust off timber, etc.; wet zones, or dust-free zones; vacuum cleaner, that I think was already suggested; use of hygroscopic materials. Then there is a thing that suggests itself to me—covers for tub tops, and having iron tubs.

9279. (*Chairman.*) Supposing you water them, would not that do as well?—Yes, that would do as well, but if you had a light cover on the top of the tub, I believe it would prevent a lot of dust. Then there is the plan of reducing the velocity of the air. That is an important point.

9280. Might not this interfere with the ventilation?—Yes, but you could make your airways bigger. There seems to be a certain velocity of air that will carry dust; if the air current has not that velocity it does not carry the dust far. Then there is periodical saturation of the air. I believe that has been tried at a colliery in South Wales. You see, supposing you have the temperature of the air in the mine, we will say 75 deg., and you heated your air descending the down-cast shaft say up to 80 deg., and saturated it with moisture, as it went in-bye, it would deposit moisture, and it would have the effect of damping all the mine so long as the cooling was taking place, and it is possible that a periodical saturation of the air in the mine once a week, or something like that, might be sufficient to deal with the dust question. Then there is the use of return airways as haulage roads. The return airways, as a rule, are not

Digitized by Google

Mr. J. B. Atkinson. 29 Nov. 1906.

much used for travelling or haulage roads, but if they were used as haulage roads, you would have the full tubs passing with the air instead of against it—and that would be much less likely to cause dust than where the tubs are going against the fresh air in the intake.

9281. (*Mr. F. L. Davis.*) Those are very interesting, and open up a great field for inquiry, but generally, may I take it that there are, in your opinion, other ways of dealing with or preventing coal dust besides watering?—Yes.

9282. Do you consider that the mine inspectors should be really skilled men?—Yes, and they ought to be encouraged in original work as much as possible.

9283. It has been suggested here by other inspectors that it might be of advantage to have another class of inspectors, and it is suggested that working men should do some of the inspection work for the chief inspectors. Do you think that there would be any advantage in having, so to speak, a second class of inspectors?—No, I do not think so.

9284. Would you consider that the managers' certificate should be a sufficient qualification for an inspector?—Yes, I should say so.

9285. Is it not the fact that the examinations for inspectors at the present day are of a higher standard than a manager's certificate?—I do not think they are.

9286. We have had it from a number of other inspectors that the examination is more difficult?—They have introduced the subject of electricity, I believe, in the inspector's examination, and they are perhaps more particular about composition and that sort of thing than for the colliery manager's examination. But as to actual mining knowledge I do not think that there is very much difference.

9287. In regard to the falls of roofs and sides, I understood you to say that a very large number of these accidents cannot, or will not be, ever prevented?—I would rather put it in this way—that everybody seems to accept them as a sort of necessary fatality in mines. It is very rare indeed that the miners ever have anything to say about them, and in the Reports under Rule 38 the men generally say they are pure accidents—things that could not be foreseen. I do not entirely agree with that, because I say a good many of these accidents might be prevented; but it will require the question to be tackled in rather a different spirit than has hitherto been shown.

9288. Do you consider that a very large number of these accidents arise from the carelessness of the men themselves, where the manager has done everything that is possible to caution the men, and impress upon them the necessity of taking care of themselves?—There may be a few such cases, but I think the men generally are careful. A man is not going to risk his life.

9289. I am not blaming the men any more that I would blame anybody else; but is it not human nature that when a man works in a more or less dangerous place he becomes careless?—Yes, and then his interest is to get coal, you know.

9290. Now as to the question of plans; do you think that, generally speaking, the owners are so careless about plans that they will employ men who are not qualified to make them?—You see, in the case of a colliery which is starting in the middle of a large royalty, it is not a matter of any vital importance to have a perfectly accurate plan for a number of years. They have a virgin field, as it were, to work at; and I do not think they do take the care they ought to take; when they come near the barriers or near any old workings, then they are not always satisfied with their plans.

9291. That is rather news to me, but perhaps we are not in the same position in South Wales?—Do you pay on the acre at all in South Wales.

9292. We pay on the ton?—In some districts, where they pay on the acre, they are very much more careful.

9293. In South Wales the properties are so small in many cases that it is very seldom you get a colliery working on one property, and nothing but one property. Very often they have five or six landlords?—Do they not insist on the accuracy of the plans?

9294. Certainly, and they have their own mining engineer and expert who comes to check the plans?—Will he check them all by actual survey?

9295. Yes, I believe so—I do not know about it being systematic, but every now and then they will come and check them by survey. I wanted to put it to you that it seemed to me unreasonable to suggest that the owners were careless about their plans?—I do not think they keep plans as well in the North of England as they do in Scotland for instance, where the plans were kept up by a firm of mining engineers. Of course there are exceptions in the case of certain large collieries where they keep the plans very well; but, taking the plans in the North of England as a whole, I should not say they were as well kept as the Scotch plans. I daresay the North of England people do not think so.

9296. Do not you think it possible that mining engineers might occasionally send their pupils?—They do, but the pupils are trained to it.

9297. But I am suggesting to you it would be better for a coal-owner to have his own men who did nothing else but look after his plans than to have a young man who is trying to learn the business?—The practice in Scotland was that a man never got charge of the compass until he had had some years' practical working as chainer and making plans. Then the heads of the firm always looked after it to see that the plans were well done, and took the necessary interest in the matter to insure good work.

9298. I suggest to you that, generally speaking—though there may be exceptions, of course—the owners are very careful for their own sakes, to see that their plans are properly kept?—I cannot agree with that altogether.

9299. (*Mr. Smillie.*) I suppose, even in a virgin field, something might come in the way which would stop a colliery for a time?—Yes.

9300. It might be abandoned by the owners?—Yes.

9301. In that case do not you think it would be quite as necessary to have accurate plans there?—Someone else might come and work in the direction of that colliery.

9302. It might be right off some other pit?—Yes.

9303. It would be well at all times to have accurate plans, as a matter of fact?—Yes; and I think it would pay in the long run. I think it does pay to be accurate in your plans. There is an immense amount of money spent in collieries in boring that might have been avoided if there had been accurate plans.

9304. Have you any unskilled workmen going to the mines in Northumberland, Durham, or Cumberland, from agricultural districts?—I cannot say that I could mention any particular case; but there are some, starting as putters.

9305. But your attention has not been specially called to it?—No.

9306. Have you had any experience in Scotland of inexperienced foreign miners coming into the mines?—There were a lot of Poles.

9307. Would you approve generally of the employment of a large number of unskilled foreign workmen who do not understand the English language?—Not altogether; I would not lay down a hard and fast rule that they must not be employed.

9308. Other things being equal, would you say that their employment would be a source of danger because of the fact that they did not understand the language?—Yes, I agree with that.

9309. (*Chairman.*) It has been represented to us that these foreigners are much better disciplined than the Scotch themselves?—Yes, I believe some of them attended to the directions rather better than the average Scotch miner.

9310-11. (*Mr. Smillie.*) Can you tell me how these men can obey orders if they do not understand the orders that are given?—I think they generally had one of their number who interpreted to them.

9312. You do not consider that a good thing?—No, it is not as good as each man knowing the language himself.

9313. You do not think that men who are deaf

Digitized by Google

would be safe in a mine?—No; I sometimes have had to object to deaf men being employed.

9314. Have you known blind men being employed in mines?—I have known men blind in one eye. I once knew a blind putter; and I had an accident about a couple of years ago where a man was blind in one eye, and probably lost his life owing to the fact of his being blind on one side.

9315. Are you aware that these unskilled foreign workers coming into the Scotch mines have never had any experience in mining prior to their coming into those mines?—I do not know what they did before they came there.

9316. If I put it to you that they had never seen a mine till they left Russia do you think that their employment in fiery mines is at all a safe thing?—Well, you send boys down fiery mines who have never been in a mine before. They must start sometime.

9317. But generally under the care of their father?—Yes; and these foreign miners ought to be under the care of somebody. As you know, in the oil shale mines of Scotland a great many Irishmen are constantly coming over and starting.

9318. But I take it that Irishmen usually understand the language?—Yes, but still they never saw a mine before, probably.

9319. Do you think that inspectors have sufficient authority at the present time conferred upon them by the Act?—Perhaps not in some respects; but I am not very much in favour of inspectors having too much power. It is far better to lay down what is to be done in the Act of Parliament, and then everybody knows where they stand and then the inspector has power to intervene if these regulations are not carried out.

9320. It was put to you to-day that in one particular case the Inspector of Mines advised the use of safety lamps and that the management refused to put in safety lamps and that a serious explosion took place?—Yes.

9321. Do you think the inspector ought to have power to enforce the use of safety lamps where he feels that there is real danger?—Do you mean by his own personal authority?

9322. Yes?—No, I would prefer that it should be laid down in some way in an Act of Parliament. Strengthen his position in that way, if you like; but do not put upon the inspector himself to say, "You must use safety lamps here: you need not use them over there."

9323. Let me give you a case in point. Was your attention at one time called to the action of a man who was deliberately driving a place in a mine in the direction of an accumulation of water?—I do not remember the particular case, but there have no doubt been such cases.

9324. Was your attention called to the fact that an owner at Larkhall was driving a pit right to the bottom of a reservoir?—Yes.

9325. It was rising very steeply, and if he had reached the bottom of the reservoir the men who were in the mine would have been drowned, for there would have been no escape for them?—Probably that is so.

9326. You stopped that pit?—I think that was the only case in which I ever used the power given to an inspector to give notice of danger under Section 42.

9327. Had you any power to stop that?—I had power to give them notice to stop, and I did so.

9328. But they could have gone to arbitration?—Yes, they could have gone to arbitration. But it was sufficient; it did stop them.

9329. That is not my point. Supposing they had refused to stop, and had claimed arbitration, and driven on, they would have reached the water before the arbitration could have taken place?—Yes.

9330. And there would have been a risk of these men being drowned?—Yes.

9331. Now, would you say that an inspector has sufficient power under the present Act?—Yes, I still say so.

9332. Have you, in several cases in Scotland, advised that safety-lamps should be put in when they have not been put in?—It is five years since I left Scotland.

9333. You do not remember at the present time?—I do not remember. Perhaps you had better not ask me about Scotland now.

9334. With regard to single shafts. Does that necessarily mean two shafts from the surface?—Yes, two shafts or outlets.

9335. Does it always mean two outlets with the surface?—It means two outlets of some kind between the surface and each seam.

9336. Supposing there was one shaft from the surface, and it went down from one seam and reached another; and then in that top seam a shaft was sunk down from the top seam to the bottom seam; has not that been held to be sufficient communication?—Yes; I think that is sufficient.

9337. Supposing anything took place in the shaft from the surface, is there any hope of the men getting out of that pit?—You mean out of the lower seam?

9338. Yes, or out of either of the seams?—You have two shafts down to the top seam, I understand.

9339. One shaft from the surface?—I understood you to say two shafts from the surface to the top seam, one of these shafts continued to the bottom seam; and then a blind pit between the two seams.

9340. Did you at one time prosecute in a case in Scotland where there was only one shaft; but it was held that there was a shaft from the top seam to the bottom seam on the ground, but only one shaft from the surface; and the court held there was a communication between them?—I do not remember that case. I think it is unlikely. You must have two shafts right to the surface.

9341. That is really the meaning of Clause 16—that there must be two shafts to the surface?—Yes.

9342. It does not mean necessarily go to the bottom seam?—No; it really means that for each seam you must have two routes to the surface.

9343. Have you any women or girls employed about the mines?—In Cumberland we have a good number of women.

9344. In your district in Scotland there were a considerable number?—Yes.

9345. Do you approve of the employment of women about mines?—I do not see any great harm in it.

9346. Were there not several machinery accidents during the time when you were inspector in Scotland, caused by the women's dresses?—Yes, that is a danger with women about the pits.

9347. In one of the cases a woman's hair was caught, and her neck was broken by being drawn round a shaft?—I had a case at Whitehaven this year where a girl's dress was caught by a revolving shaft.

9348. Apart from the extra danger, do you see any reason why women should not be employed?—I do not think it unhealthy work.

9349. Are not they apt to hear a considerable amount of filthy language?—That is the fault of the men, perhaps—not of the women.

9350. Will you tell me exactly what Section 21 of the Act means. "In every mine required by this Act to be under the control of a certificated manager, daily personal supervision shall be exercised either by the manager or by an under-manager, nominated in writing by the owner or agent of the mine." What does "daily personal supervision" mean there?—That would be a matter for the courts to define; but I should take it being at the mine every day.

9351. I think you have stated—and I want to know if it is your opinion now—that the "manager" referred to here might visit the mine for 10 to 15 minutes, and that that would be "daily personal supervision"?—Yes, I think it would.

9352. Do you think that is adequate supervision of a mine?—Not if it was that way every day. But you might say occasionally it might be.

9353. Do you think the spirit of the Act is fulfilled? Is it not the intention of the Act that some person holding a certificate—either first or second—shall be continually at the mine?—Do you mean at the mine day and night?

9354. No, I mean during the day?—I do not know.

Digitized by Google

Mr. J. B. Atkinson. 29 Nov. 1906.

9355. Therefore, one certificated manager might act for ten different mines?—Yes.

9356. Do you think that is the intention of the Act?—I think that might be held to comply with the Act. I do not think it is desirable. Of course, with very small mines he might easily look after ten. But if they were ten large mines it would be clearly impossible for him to give proper attention to them.

9357. Rule 1 says: "An adequate amount of ventilation shall be constantly produced in every mine to dilute and render harmless noxious gases." Is that rule, in your opinion, quite sufficient?—It is in my district at present. I have not found any difficulty with it; but I can quite see that in some districts it might not be sufficiently strong—not sufficiently definite. On the other hand, there are objections to specifying the amount of air in reference to the number of persons employed, because that would vary with the amount of gases that were given off and many other considerations; so that it is rather difficult to put it into figures.

9358. Would a rule of a similar nature be sufficient to deal with coal-dust—"Adequate precaution shall be taken to render harmless coal-dust"?—No, I think I should go a little further in the case of coal-dust by inserting some such provision as: "Every main haulage road shall be kept so free from coal-dust that an explosion of coal-dust and air could not be either started or propagated along it," or words similar to that.

9359. (*Mr. Ratcliffe Ellis.*) Would that apply to every mine?—Yes, it would be a general rule, that would apply to every mine.

9360. (*Mr. Smillie.*) It would make it impossible that there should be dust to propagate or continue an explosion?—Yes.

9361. With regard to engine winders, are you in favour of it being necessary for engine winders to hold certificates of competency?—My experience of engine winders is that they are a very fine class of men.

9362. That is the general experience, I think?—I do not think you would improve them much by giving them certificates.

9363. Do you remember an over-winding accident which took place at Swinhill Colliery, at Larkhall, during a strike of engine winders, and a person, who, it was found out afterwards, was not a skilled engine winder, was put on there, and an over-winding accident took place. In view of the possibility of a thing of that kind, would it not be well that there should be some certificate of competency to prove that a person is competent before being employed?—There would be no harm in it; but I do not think it is necessary.

9364. Everyone admits here that engine winders in this country are generally splendid men?—Yes.

9365. And everybody, I think, admits that the large majority of colliery managers are a splendid body of men; but it is for the bad managers and the bad winders that legislation is required?—According to my experience I do not think certificates are necessary for winding enginemen.

9366. Would you say the same thing with regard to the colliery fireman and deputy? Do they not require, in your opinion, a certificate of competency?—I think not.

9367. Are the lives of the workmen employed underground not in the hands of the engine winders and the colliery firemen more than in the hands of the managers of the colliery?—No, I would not say more so, because the manager of the colliery appoints the firemen and the engine winders, and, as a rule, they are competent men.

9368. (*Chairman.*) There was a case mentioned the other day where an engine winder, under the stress of a strike, was forced on the colliery manager, and he proved to be an incompetent man, and an accident happened. In that case it would have been as well that by law the engine winders could have been prevented from being able to force upon the management a man who was not competent?—Yes.

(*Mr. F. L. Davis.*) The man might have held a certificate of competency and yet not have been so competent as another man the owners could have got; but they were forced, because this man was next on the list, to take him instead of a really more capable man.

9369. (*Mr. Smillie.*) Your opinion is, I think, that inspection of mines has tended to safety?—Do you mean inspection of mines by workmen?

9370. No; by Government inspectors?—Yes, I think so.

9371. But you do not think that additional inspectors are necessary?—I think there is a limit up to which Government inspection can be usefully carried.

9372. Have we reached the happy medium yet?—I should say we have, just about.

9373. You are aware that in France there is a system of inspection by practical miners selected by the workmen and paid by the Government?—No, I am not aware of that, but I take it from you it is so.

9374. For two years they have had a law which gives the men the right to select a number among themselves of practical workmen; those are appointed by the Government, and they are elected for three years by the workmen?—Yes.

9375. Do you think that it would be likely to be in the interest of safety if the same thing were done here?—How is it working in France?

9376. I do not think we have had sufficient experience to justify an opinion being given yet?—I would rather not give an opinion, then, until there has been experience.

9377. Are you aware that when it is known that an inspector is coming to a colliery, in many cases, as soon as they are informed he is coming, there are great preparations made for safety?—In what direction do you mean?

9378. In the direction of putting up additional brattices to improve the ventilation?—I dare say it might be done to some extent, but not very largely. They would not have time to do it; besides there could not be much wrong if they could put it all right so quickly as that.

9379. In a large part of Scotland the brattice is usually tarred or pitched cloth. As an inspector, has it ever struck you that there was a remarkable amount of new bratticing sometimes when you went to a colliery?—No, I cannot say that it has.

9380. I may say I have known of it being put up just before you went round making your inspection?—I have known a mine in Scotland where a fireman actually in one instance preceded the inspector putting the mark of inspection on the places.

9381. Which had not been put on before?—Which had not been put on before; but the inspector found him out.

9382. Would you go the length of saying that the Government might pay for inspection by workmen at least once a year?—I just threw that out as a suggestion which might be made use of.

9383. You yourself would not object to that?—I would not object to it.

9384. But you do not think that an additional inspection is required at the present moment?—Not according to the view that I have taken of the scope of Government inspection. You must understand that if the Government undertake to examine each mine in the manner that they must be examined by the manager or officials, it is physically utterly impossible for the present staff to approach anything of that kind.

9385. Are you aware that it is the opinion of the general public that the inspections reported by the Mines Inspectors to the Home Office are supposed to be a thorough examination of the whole of the mines?—I rather wanted to correct that impression, as I thought it might exist.

9386. It is physically impossible for inspectors in any part of the British coalfields to make a thorough examination of all the mines in their charge once in every twelvemonths?—Yes, it is impossible.

9387. If the Home Office or the general public are of opinion that it can be done, and is being done, they are under a wrong impression?—That is so.

9388. (*Dr. Haldane.*) You referred to the fire at Maricewood Colliery in connection with rescue apparatus?—Yes.

9389. If I remember that fire, it was a fire which started at the top of a main incline?—No, at the bottom of a main incline.

9390. In a return airway?—In a return airway.

Digitized by Google

9391. It started in the return?—Yes.

9392. And the smoke got through into the intake?—Yes. The fire began here, and it came up opposite here, and then away to the upcast shaft (*explaining the plan*).

9393. Are there two shafts?—One shaft; it was a divided shaft, and was both downcast and upcast; the communication shaft was over here. That is the section. It is here that the fire began.

9394. And it spread up?—It actually did not get up to here; but what happened was that the return air instead of taking up the return actually came through on to the intake, and then went down again.

9395. Was there not a door left open, or something of that sort?—Even if that door had been full open the normal state was that the air should go from the intake to the return, but it came out from the return on to the intake.

9396. And was in that way carried through the whole mine?—Yes; the explanation of it is given here. The real fact was that owing to the increased frictional resistance above this point, the tension of the air arrived at that point in the return in excess of the tension of the descending air, and the hot air and smoke passed through here into the intake.

9397. After the fire was once started?—After the fire was once started. The same thing has been observed in collieries in the county of Durham.

9398. In the case of fire, do you mean?—No, it is in a case of this kind. They were doing some repairs in a shaft, and they put a cradle in the shaft above an upper seam, and a small current of air that usually passed from the down-cast to the up-cast in the upper seam reversed, and the up-cast air came along this road in the upper seam and down the down-cast and round the workings, owing to the increased frictional resistance set up by this cradle in the up-cast shaft. It is all described in the paper on ventilation paradoxes in the North of England Mining Institute transactions.

9399. In that case there was an obstruction placed in the airway?—Yes, in the up-cast shaft.

9400. But were there any obstructions in the case of Mauricewood?—I do not think there was any obstruction. I think it was simply the increased flow of air caused by the heat of the fire, and the burning out of a door separating the intake and return at the foot of the dook, had led to a re-arrangement of the frictional resistance.

9401. One would have expected that it would draw all the harder, the air being so hot?—Yes, you would have expected that the air would have rushed from the intake to the return.

9402. Was not there any fall in the dookway?—In this main dookway. In this return dookway there were a great many falls about *here*.

9403. Do not you think the falls may have blocked the airway when they came down? However, I do not want to go into that now. The main point that I wanted to ask you about was as to the use of rescue apparatus in a case like that. Supposing there had been rescue apparatus available at Mauricewood Colliery they could have got at that fire, could they not?—They could have got at this door.

9404. They could have got down the intake dookway?—Yes.

9405. And got at the door?—The smoke was standing a good deal above the door, and we went down on the carriage, and tried to get the door shut and block it. It was very difficult working in the smoke. Now a rescue apparatus would have been of use there.

9406. And of essential use; it might have saved the whole of the men in these workings, might it not?—I do not think it would have saved all of them, because some of them were dead probably long before they could have been got at.

9407. It was only a limited amount of smoke that was coming down the intake?—There was a lot of smoke. You could not have lived in it. The carriage was lowered once or twice immediately after the fire broke out, and there were two or three men got on to it who were dead when they came to the top on the carriage.

9408. But there were a number of men in the workings?—They had lived some time, because they had put in stoppings.

9409. If you could have got that door blocked up so as to take all the smoke up the upcast, you might have saved those lives?—Yes, it is a case where something might have been of use.

Mr. J. B. Atkinson.
29 Nov. 1906.

9410. The rescue apparatus they have in Germany is chiefly used for underground fires; I do not know that it has ever been used in the case of explosion, or anything of that sort. There might be other cases of fires in which they would similarly be of use in doing work in the mine which would save the men?—It is quite possible.

9411. With regard to dust, I think you said you were in favour of an accumulation of dust being prevented in all haulage roads?—Yes.

9412. Would you include with that all intake roads—there are some intake roads not haulage roads?—Yes—very rare cases.

9413. They might have dust, I suppose you would say, from the surface?—Yes, I know of some cases where intake airways, that are only used as intake airways, are dusty with the dust that must have come from the shaft or the screens because there was no other source. One case I know where, I should think, three-quarters of a mile or so of road of that description is covered with dust from that source.

9414. And you think it would be sufficient to confine any measures for the prevention of dust to the haulage and intake roads?—Yes, I think it would be in the meantime, at any rate. Perhaps it might be sufficient altogether.

9415. Now, with regard to the nature of these measures; do you think watering would usually be necessary?—It would be a question of experience. If they could take off the supply of dust altogether by preventing the screen-dust getting down the pit, and take some means of preventing the dust rising from the tubs you would not need to do anything. There would be, however, probably a certain amount of dust in the road.

9416. You think there would be a number of cases in which watering would not be necessary, if these precautions were taken?—I think so, if these precautions were taken.

9417. You are aware, I dare say, that in the Westphalian Mines there is no watering required in a good many seams?—No, I did not know that.

9418. With regard to standards of ventilation—a matter which has been referred to the Commission—do you think anything more definite in the way of a standard is required than the presence of a cap on the flame?—I do not think that in the collieries in the Newcastle district anything more is required.

9419. There is not very much gas, is there?—Yes, we have a good deal of gas in some of the pits in Durham, and in Northumberland, too, now. They are going down to the lower seams. There is a great deal of gas on both banks of the Tyne, both in Durham and Northumberland. But, generally speaking, the collieries are well ventilated. But as to the iron ore mines, I would like to see some standard adopted, for the ventilation there is not always satisfactory.

9420. Are those the hematite mines?—Yes.

9421. They are under the Metalliferous Mines Act?—Yes.

9422. Then, the manager there need have no certificate?—He need have no certificate.

9423. Those are some of the largest mines?—Yes, the largest metalliferous mines in the country.

9424. And they employ a very large number of men, do they not?—Yes.

9425. In the neighbourhood of Barrow?—Yes, Barrow and Hodbarrow and Cleator Moor.

9426. Can you give a general idea of how many men would be employed there?—In Cumberland there were employed last year underground 3,338, and in Lancashire 931 in the hematite mines.

9427. About 4,000 men?—4,269 altogether.

9428. In how many mines?—There would be roughly, I should say, between 50 and 60 hematite mines.

9429. Are not some of those very big?—Some are big, but there are a lot of very small ones.

9430. With regard to ventilation, do you find that the ventilation is bad in these mines, and what test do

Digitized by Google

Mr. J. B. Atkinson.

29 Nov. 1906.

you suggest?—I was inspecting some of these—it was certainly in hot weather in August—and I found the ventilation rather poor in some of them. In the Special Rules at one mine, Postlethwaite's Moor Row, it is provided that the manager "shall see that all the working places and travelling roads are properly ventilated, and if the air in any of them should be in such a state that a newly-trimmed candle, standing erect, will not burn brightly for at least five minutes, he must prevent the miners or any of them entering or remaining in such working place or travelling road." That is an attempt at a practical test or standard.

9431. Was there much smoke, and was there much blasting?—There is a good deal of blasting—principally with gelatine dynamite. It was more stythe which I found in one or two of the mines.

9432. Putting out the candle?—Or the candle burning badly.

9433. Had you any complaints, or had you any reason to suppose that the ventilation was affecting the men?—I do not think it was very good for the men, but I had not had any complaints about it; and I believe, probably, those mines in colder weather would have been quite well ventilated.

9434. They are shallow mines?—Some of them are up to about 100 fathoms.

9435. Still they are mines that would be badly affected by the summer weather?—Yes, they are very irregularly-shaped workings, and the deposits themselves are of a very curious shape.

9436. There is no fan ventilation?—There are, I fancy, some fans, though I do not remember any particular case just now. It is principally natural ventilation.

9437. In those cases if they were blasting much you might have actually poisonous air, I suppose?—Yes.

9438. And you think that some standard of ventilation ought to be fixed?—I think it would be useful to have some standard of ventilation for metalliferous mines, and it would not be so difficult, I suppose, because you need not consider gas at all. It is so rarely seen that it need not be considered.

9439. But you would have to consider poisonous gas—carbonic oxide particularly from blasting?—Yes.

9440. You are of opinion, I think, that metalliferous mine managers ought to have a certificate?—I see no objection to it, and they seem to be rather in favour of it.

9441. Are you speaking of the hematite mines?—Principally the hematite mines.

9442. Some of the managers there have very important duties?—Yes.

9443. They have a large number of men under their care?—Yes, at Hodbarrow at Park Mines they are large mines employing rather more than 1,000 men underground.

9444. Would an examination for a manager's certificate in hematite mines have to be a different sort of examination from that for other kinds of metalliferous mines?—I do not think so. I think you might make one examination do for all metalliferous mines.

9445. Would you include slate mines and slate quarries?—Yes, the mines, I think, but not the quarries.

9446. Have you many lead mines in your district?—There are three in the Isle of Man—lead and blende—and at Nenthead in Cumberland there are considerable mines, principally for blende.

9447. Do you think the managers of those mines ought to have a certificate?—Yes, I see no reason why they should not. I would suggest any mine employing over 12 men should be under a certificated manager, or something like that.

9448. With a mine employing only 12 men, I suppose you would not suggest such a high standard of certificate?—I think only one certificate would be necessary, to begin with at any rate. I do not suppose more than one would ever be required.

9449. Do you think any legislation is required as regards lead mines in connection with miners' phthisis. You are aware that special rules have been made for Cornwall lately?—Yes, I have not made any particular inquiries about miners' phthisis in the case of lead mines in the district. I did make some inquiry as to ganister mines.

9450. Are they in your district?—In Cumberland—a small working in connection with coal, but there was no indication there of any danger arising from the dust, and I do not think there is any in connection with lead mines.

9451. Are you aware that the Registrar General's statistics as to lead mines show a great deal of phthisis?—Is that due to dust.

9452. I think it is. There may be differences of opinion as to that; but in the Isle of Man there is a great deal of phthisis, I have heard?—There is a good deal of ladder-climbing up some of the mines there, which I think may be blamed for much. It is a barbarous system—200 fathoms of ladders.

9453. You are aware, I suppose, that since ladders were abolished in some Cornish mines, that phthisis did not diminish; in fact, it has been worse lately, since the introduction of rock drills?—I suppose rock drills are probably a prolific cause.

9453*. (*Mr. F. L. Davis.*) Dr. Haldane referred to Westphalian mines, and to some of the seams not being dusty. I should like to ask, are there any means taken to prevent the dust going from the surface down to those pits?

(*Dr. Haldane.*) We did not examine any of the seams that were not watered. We wished to go into all the difficulties in connection with watering.

9454. (*Mr. F. L. Davis.*) But on the surface, did you happen to notice any means of preventing the dust from the screens going down the shaft?—No, I do not think there was; at least I did not notice it in the collieries I looked at.

(*Mr. Smillie.*) It has been pointed out that in Wales and in some other places, to remove the screens and sidings would cost an enormous amount of money, and that it could not be done in some places. Would it be possible to have a dumb drift driven to the downcast shaft, the mouth of which would be away from the screen, in order that the air might go down clear?

(*Dr. Haldane.*) I think that would be the cheapest way of doing it.

9455. (*Mr. Smillie.*) There are dumb drifts in the downcast shaft driven in many places—the shaft being closed up at the mouth; such a dumb drift at 20, 30, or 40 yards might take it away from the dust altogether?—It would take it as far as necessary.

9456. And it would not interfere with the ventilation current?—Not to any great extent. I have here a letter from Mr. William Leck, the Assistant Inspector for Metalliferous Mines. He says: "The Annual Reports of your predecessor in charge of this district, the late Mr. Hedley, contained frequent references to the necessity of a new Act for metalliferous mines, and he wrote to the Secretary of State on several occasions, namely, in October, 1897, and July and August, 1899, specifically suggesting the introduction of an amending Bill. On October 25th, 1897, and on July 1st, 1899, he urged the provision of a second outlet in consequence of mishaps which occurred at Holebeck and Woodend Mines, respectively." I may say there is no provision as regards a second outlet at present in connection with metalliferous mines, and that is rather an important point. "On August 30th, 1899, he wrote again after the Southam inquest, suggesting that a new Act should provide for inspections by workmen and the provision of report books, as under the Coal Mines Acts. The points mentioned in his Annual Reports were as under:—1893, page 28, Inspection of ropes and machinery, Bigrigg Mine; 1894, page 29, Boring against water, Birks Mine; 1895, page 39, Unramming dynamite, Cleator Mine; 1897, page 43, Single Shafts, Holebeck Mine; 1898, page 51, Plans of abandoned mines, Stonecroft Mine; 1899, page 58, Inspection by workmen and Report Book, Southam Mine." Then Mr. Leck summarises them thus:—"(1) Managers. Managers should be required to hold certificates. This would tend to improve the status of the Manager who is not recognised by the present Act. Colonial and foreign experience might fairly be allowed to count. (2) Inspection of mine by officials. Provision should be made for an inspection before commencing work and once during each shift. (3) Inspection of mine by workmen. This provision might be included, but I am not sure as to how far

Digitized by Google

workmen would take advantage of it. (4) Inspection of winding ropes and machinery. Provision should be made for this."

9457. (*Chairman.*) Is there any provision for that now at metalliferous mines?—No, unless it happens to be in special Rules. There are none in the Metalliferous Mines Act. "(5) Report books. This would follow naturally on the adoption of items (2), (3) and (4). (6) Single shafts. A second outlet should be compulsory. (7) Plans of abandoned mines. Mines employing not more than a dozen persons underground are not at present required to send in plans on abandonment. The limitation as to number of persons employed should be abolished. Sections 38 (5) of the Coal Mines Regulations Acts 1887 might also be added. More detailed information might be given, following the lines laid down in the Coal Mines Regulation Acts 1896. (8) Sanitary precautions. In view of the possible introduction of ankylostomiasis by returned miners from South and West Africa, some sanitary regulations should be enforced. No underground conveniences are provided at any of the iron ore mines: the main stream running towards the shaft is generally used as a latrine. (9) Special Rules might be compulsory when more than 12 persons are employed underground. (10) Weighing. Mr. Flynn, the Miner's Agent, has casually mentioned to me on several occasions that a new Act should include provisions for weighing the mineral obtained. At a few places weighing is adopted now, but at most the payment is by measure—a fixed price per bogie. I have never heard workmen complain of the payment by measure system, but, speaking generally, wherever weighing is adopted the men think they don't get full weight. There are no check weighers. (11) Undersea workings. Undersea workings are carried on at Hodbarrow Mine, Cumberland, and to a small extent at Roanhead Mine on the Lancashire side of the Duddon estuary. At Hodbarrow an elaborate and extensive barrier or sea wall has been erected at great cost, and all work is carried on inside this wall. The usual method of working hematite at Hodbarrow and in Furness is to begin with the top ore and work downwards. By this method the surface subsides as the ore is extracted. A trial was made some years ago at Hodbarrow of the 'square set' or 'American' system of timbering, whereby the bottom ore was first worked out and the space between the timber was packed solid with stone. It was found that this system was not effective against side pressure, and it has been abandoned. Hodbarrow and Roanhead are favourably situated for trying sand-packing, and I should think that at both places the results would be economical and effective. At Crowgarth Mine, Cleator Moor, arrangements are being made to pack with sand, so that pillars of ore may be taken out without disturbing the surface. In this case the sand has to be quarried and then carted about a couple of miles. (12) General Rules. (a) A standard of ventilation might be introduced. In the Special Rules of Postlethwaite's Moor Row Mines it is provided by Rule No. 10 that the Manager 'shall see that all the working places and travelling roads are properly ventilated, and if the air in any of them should be in such a state that a newly-trimmed candle, standing erect, will not burn brightly for at least five minutes, he must prevent the miners or any of them entering or remaining in such working place or travelling road. He shall frequently test the ventilation, and keep a record of such tests in a book provided for the purpose.' (b) In General Rule 2 (b) 'five' should be inserted instead of 'four' to agree with the Coal Mines Act, and in (e) of the same rule, 'explosive' should be inserted instead of 'powder.' In a new Act the word 'explosive' would presumably be substituted for 'powder' throughout. See Section 11 (1). A new General Rule might be inserted dealing with miss-fires. No person to return to a miss-fire under thirty minutes, except where a straw or electricity has been used. I should like to see the adoption of a rule providing that not more than six inches of stemming should be used with the high explosives. In case of a miss-fire there is then no temptation to unram. This provision could, however, be included in the Special Rules. (c) Boring against water. Provisions, on much the same lines as those in the Coal Mines Act, might be inserted. In limestone and iron ore it is not usual to keep a bore hole more than six feet in advance. The practice at Hodbarrow, when driving a trial ore drift beyond the old sea wall (while the new barrier was in course of erection) was to bore a leading hole to a depth of 16 feet, carry the drift forward until there was only 6 feet left of the hole, and then bore it on again to 16 feet."

Mr. J. B. Atkinson.
29 Nov. 1906.

9458-9. (*Chairman.*) Is there any provision against boring against water?—No, and accidents have happened.

FIFTEENTH DAY.

Wednesday, 12th December 1906.

PRESENT:

Lord Monkswell (*Chairman.*)
Sir Lindsay Wood, Bart.
H. H. S. Cunynghame, Esq., C.B.
Wm. Abraham, Esq., M.P. (Rhondda).
F. L. Davis, Esq.
Enoch Edwards, Esq., M.P.
Thomas Ratcliffe Ellis, Esq.
John Scott Haldane, Esq., F.R.S.
Robert Smillie, Esq.
S. W. Harris, Esq. (*Secretary.*)

Mr. Arthur Henry Stokes, called and examined.

9460. (*Chairman.*) I understand that you are the inspector of the Midland District, No. 8. How long have you been in that district?—I shall have been in that district 33 years in a few days.

9461. As inspector and assistant-inspector?—As an assistant-inspector first, and then as inspector in charge.

9462. Have you had any experience elsewhere?—As inspector, do you mean?

9463. As inspector or assistant-inspector?—Not as assistant-inspector or inspector. I have been in other districts before I was an inspector.

9464. The whole of your experience practically has been in the No. 8 district, or most of it?—That is so.

Mr. A. H. Stokes.
12 Dec. 1906

Digitized by Google

Mr. A. H. Stokes.

12 Dec. 1906

9465. What staff have you—two assistants?—Two assistants.

9466. Do you consider yourself and two assistants are sufficient staff to carry on the inspection?—We have done it so far. In my Report for last year you will find that this remark occurs: "Every coalmine in the district has had at least one underground visit during the year one-third of the mines have had two underground visits, and a few three inspections."

9467. That, you consider, is quite satisfactory?—That is the maximum that is possible to be got out of the present staff.

9468. My question was rather as to whether you thought the present staff was sufficient—whether you would desire there should be more inspections and a larger staff?—Are you including the quarries as well, because the quarries do not receive the inspection probably that they should have.

9469. You think that the quarries are rather neglected. That is your view?—I have a large number of quarries in my district, but a great quantity of them are quarries of very small importance. With regard to all those quarries in which Special Rules are established, I make it a practice if it is possible for them to have a visit every year.

9470. It is your opinion that the quarries are not inspected as much as you think desirable?—I think it would be desirable to have some more assistance.

9471. Would you suggest that you ought to have another assistant, or that the size of your district should be reduced?—I should suggest another assistant, but when we come to Rule 38, as to workmen's inspection, I have a suggestion to make which perhaps may bear upon this question.

9472. At all events, you consider that as regards the coal mines, the inspections are fairly sufficient?—I think so.

9473. You are able to do all the work that is desirable, but as regards the quarries you are rather short-handed?—Yes, short-handed.

9474. With regard to inspection under Rule 38, do you wish to make a statement about it?—If you will allow me, I will read the note I have which bears upon that. General Rule 38 is practically a dead letter in the district. I only found one report this year. In some cases previously the owners paid for the inspection, and in some cases the owners paid half. The men's representatives worked hard for this privilege, and now it is discarded in my district, except in a few cases. The difficulty is the payment, and if that could be arranged it is probable a workmen's inspection would be made in every mine. The inspection might, I think, be made compulsory once a year by two workmen selected by the workmen of the mine and approved by the Inspector of Mines. The Secretary of State should have power to exempt any mine, and all mines not employing a certificated manager should be exempt. The Rule would remain, but its carrying out would be under the control of the inspector. If made compulsory, as I would prefer, the selection of the workmen might be similar to the selection of a check-weigher; if not selected in a month after notice served by the inspector upon the check-weigher, then the check-weigher himself shall nominate two workmen, and they shall, within three months after being approved by the inspector, make the inspection. In this arrangement there would be someone responsible for the work provided it was not done. Will you allow me to remark here that I think one reason perhaps why the workmen do not take advantage of this power of inspection so much as they might do is that their reports are sent to the office of the colliery. I would suggest that in this case the reports should be sent direct to the inspector, and he should take up any points that they name in them. Then I would suggest that the workmen who make the inspection should be workmen of the mine and not strangers, because they are to a great extent familiar with the mine; they are familiar with their fellow-workmen, and they would know what was going on. Probably the Commission know that something similar to what I have suggested is at work in France and Belgium at the present time.

9475. In France the State pays, I understand?—I believe that is so. Probably Mr. Cunynghame will be able to say. I think what I am suggesting is very similar.

9476-7. Who is to pay these men?—The payment I would suggest, would be payment very similar to what is done under the Factory Act. Here under the Factory Act we have a certifying surgeon; he is not a Government official in any way. He investigates, or should investigate, all the accidents by machinery in factories. He is paid by the State for that purpose, and it is payment something in that style I would suggest should be made.

9478. By the State?—By the State, in a similar way as the certifying surgeon is paid. Then as regards cost, I do not know whether the Commission would like me to say what my opinion is about the cost of such inpection; I have tried to get at the cost.

9479. What is your view?—It is a very rough and ready way. I should take the workmen's inspection for once in the year, and probably it would cost the State not less than £1,000 for my district.

9480. That would be £12,000 for the whole country? That I could not speak to.

9481. Your district would cost £1,000?—I have taken away the mines in my district which I think would not require a workmen's inspection, which would be exempt, and then I have made a calculation very roughly. It take it it would be not less than £1,000; it could be done for that.

(*Mr. F. L. Davis.*) Will you tell us in your calculation how much you propose to pay each man for the inspection?—Per day?

9482. Yes?—It is very rough, but I put it down at 10s. a day.

9483. (*Chairman.*) That is about double what he gets now?—I am sorry to say it is more than double. There are a great many in my district not getting that.

9484. (*Mr. Smillie.*) Are you sorry about that?—I am very sorry indeed the men are not getting more wages, and I am very sorry indeed the masters are not getting more profit. I think, if I may be allowed to make the remark, that John Bull ought to pay a good deal more for his coal than he does, and the men and masters ought to get their proportions of it.

9485. (*Chairman.*) At present I understand the remuneration would be between 6s. and 8s. per day?—In the hard coal pits some of the contractors are getting good wages, but I have put more than the average for the district—far above it. I have done that so that there should not be any criticism. I like to see a man well paid for his work, especially a collier.

9486. Do you think this work of inspection is very responsible and important, and ought to be paid for at a higher rate than a hewer's wage?—Yes, because we should have the pick of the men. I think if you have the pick of a commodity you ought to pay the highest price.

9487. You say 10s. a day; very well?—I have a note here that Belgium probably pays £10,000 a year for such inspection.

9488. They have not nearly as many mines as we have?—No. This materially bears on the question you put to me as regards more assistance. What I wish to impress upon the Commission is this, that during my time these men have pressed hard for this privilege. Now I would say give it to them, and give it to them to the full extent, and let us see if it would reduce the accidents.

9489-91. Would you say twice a year would be enough?—This inspection by the workmen would be only once a year.

9492. (*Mr. Enoch Edwards.*) They would be selected in the same way as check-weighers at first?—I would prefer that it should be compulsory; the selection of the men to be similar to the selection of a check-weigher. If not selected in a month after notice served by the inspector upon the check-weigher, then the check-weigher himself shall nominate two workmen, and they shall, within three months after being approved by the inspector, make the inspection. Perhaps I may say this, that if the workmen refuse and the check-weigher refuses, then I would put it upon the inspector to select two himself. I should make it that the workmen shall not get out of this privilege they have asked for, and it shall not be taken away from them.

9493. (*Chairman.*) In your district you have had no experience of the working of Rule 38, because it has

Digitized by Google

never been put in practice?—This year I have had one report. It has been put in practice a little, but I think the payment is the block.

9494. I am rather surprised to hear that the owners sometimes pay the whole and sometimes half of the cost of inspection. As a rule, I understand the men pay for the whole of it in the other districts, and yet there is a good deal of inspection—at least, a certain amount; not as much as the Commission would wish, perhaps?—I do not like the idea of a manager paying two of his workmen to make an inspection of his pit. I do not think it is of much value.

9495-6. I should have thought it was rather doubtful policy of the men to ask the owners or managers to pay these men. They would consider the men were not sufficiently independent if they were paid by the owners?—I do not think it is a question of asking. I think it was more probably a question of the managers saying, "If you like to make the inspection we will pay half and you shall pay half."

9497. At all events, you do not think it is a bad plan that either the owners or the State should bear the expense of these inspections?—I think the State should bear the expense, not the owners nor the workmen. I would make it compulsory that it should be done. If workmen fail to nominate then the inspector nominates the two men, but they should be workmen of the mine, and not strangers.

9498-9. With regard to that, we have had some evidence that it is desirable that there should be no such limitation. Sometimes it is found that some workmen in a district are especially good at that kind of work, and it has been considered desirable by the men to appoint outsiders to go down their mine?—I do not think myself that it is fair to a colliery owner that a stranger should go down his mine.

9500. In what way would it be unfair to the colliery owner?—First of all, who is the stranger, and has he some other object, or may he use the knowledge of the mine so obtained in some other way?

9501. The object of the men is that the inspection should be efficient; they happen to know of a man in a neighbouring mine who has a reputation for making these inspections. Why should they be deprived of the benefit of his assistance if he is willing to give it, and what objection could the owners raise to such a course?—I have been a colliery manager myself, and I should raise the strongest objection, if I could, to any man who is a stranger going down my pit. I do not know what his meaning is. Is his meaning honest and good, solely to make an inspection for the workmen? He obtains a lot of information in my pit that I do not want to be known to strangers.

9502. The men in the mine would themselves be the persons who would appoint somebody to go down, and they might appoint a stranger because they thought he was a better man than any of themselves?—I question that. Is not the man who works in the mine daily the best man? I presume you are not suggesting that he should be an expert to go down and examine the plans. It is the practical view of inspection that is wanted.

9503. (*Mr. F. L. Davis.*) Some strangers might go with the object of trying to get information as to various prices for certain work, and if they were higher than the men were getting in their particular pit they would try and get their prices put up?—If I were a manager I should flatly refuse. It should be a practical examination—not an examination of the plans and ventilation. The men are not qualified for that work, so that it is no good putting it on them.

9504. (*Chairman.*) It is your view that the men ought to be restricted to employing their own fellow-workmen in the mine. We have had it in evidence that outsiders sometimes are employed, and I have not heard that any objection has been raised on the part of owners or managers?—I hope I have put it clearly enough for the Commission to see what my view is on the point.

9505. Is that all you wish to say about Rule 38?—I have nothing more to say upon Rule 38.

9506. With regard to discipline and supervision by the owners in mines, in your Report you say you have not prosecuted any mine official during last year?—Not during the last year.

9507. You have very few prosecutions?—Far too many. I wish the discipline was such that no workmen would be prosecuted. That is the ideal.

9508. I was asking about the officials. There has been no prosecution by you, I understand, during last year, of the officials of the mines?—I seldom prosecute an official. It is the manager I would prosecute, or the owner.

9509. There has been no manager, owner, or official prosecuted? There has been no prosecution by you under the Coal Mines Act for three years—I have had one this year.

9510. As regards the prosecution of the men, do you consider discipline is better maintained by prosecution than by fine?—You will see the list of prosecutions in my Report. As I say, they are too many; not that there are too many prosecutions, but I mean it shows a sad want of discipline in some cases. Just take one on the first sheet: "Unramming a shot which has misfired"; that is very serious, and it is sad to think any man would risk his life like that; one is very sorry to see that prosecution in a Report. "Taking matches, tobacco, pipes, etc., into the mine" is another class of offence.

9511. For all those dangerous breaches of discipline the men ought, in your opinion, to be prosecuted?—Certainly.

9512. You would not allow a fine in those cases?—No fine can meet a case of that sort.

9513. You look over the list of fines kept at the mine for fines agreed upon between masters and men?—Occasionally.

9514. Supposing you came across a fine for a gross breach of discipline, such as taking down matches or for doing anything to endanger life, would you remonstrate with the owner or manager?—Certainly.

9515-6. For inflicting a fine instead of prosecuting?—Certainly. I should point out to the manager that there ought to have been a prosecution and not a fine. A fine would not meet such a case as that.

9518. When you look over the list of fines do you have occasion often to call the owners' or managers' attention to that?—Occasionally. We have a remarkable good class of managers in my district, and the discipline is good. I do not think any manager would overlook a case of that sort. I do not think he would consider a fine sufficient to meet the case.

9518-9. You know it is generally supposed, according to the general reading of the Mines Regulation Act, you have power, if you pleased, to prosecute an owner or manager for refusing to prosecute a man?—Myself.

9520. Yes; you would have the power under Section 50 or 51. It is generally supposed that those sections give an inspector of mines power to prosecute an owner or manager of a mine if he refuses unreasonably to carry out the discipline in his mine by not prosecuting the men who have been guilty of breaches of discipline?—That is the argument I use sometimes. When I find a case of that sort I tell the manager: "If you do not prosecute the man I will prosecute you."

9521. You understand that is part of your duties, and would you do it if the manager was obstinate?—Without hesitation I should do it.

9522. With regard to inspection under Rule 4, do you think that works satisfactorily—the inspection by officials?—May I read my note on that?

9523. By all means?—General Rule 4: The inspection before commencing work should remain as at present. There should be not less than two inspections of the working places during a working shift, and in this case two or more shifts succeeding one another shall not be deemed to be one shift. The result of all inspections should be reported by the official making the same before he leaves the mine. In one case in my district—may I ask your Lordship to look at that (*handing chart*)—and this is a large mine, they have sheets put up similar to the one I have handed in, and the official in passing through the working place enters upon that sheet the time of his inspection. That appears to me to be a very good check.

Rule 4

Digitized by Google

Mr. A. H Stokes.

12 Dec. 1906.

FIREMAN'S TIME SHEET. —— COLLIERY.

*Stall No.*_____ *District.* *Stallman*_____ *Week ending*_____ 1902

	Time of 1st Examination		Time of 2nd Examination		Time of 3rd Examination		Time of 4th Examination		Time of 5th Examination		Time of 6th Examination	
		Sign		Sign		Sign		Sign		Sign		Sign
Thursday - -												
Friday - -												
Saturday - -												
Sunday - -												
Monday - -												
Tuesday - -												
Wednesday -												

Examined *Remarks*

9523*. May I read my Special Rule which bears upon this matter, the latter part of Special Rule 37? I am reading from the Warwickshire copy; the other copy is not such a good code of Special Rules as the Warwickshire. I am reading from the Kingsbury Colliery Rules. "The deputy or competent person shall in the course of each shift make a similar inspection of all parts of the mine in which workmen are to work or pass during that shift, and shall make a report of the same before leaving the mine." We have provided there for one inspection during the working shift. I would like to see one alteration in that, and that is instead of one there should be two inspections.

9524. What word do you want to alter?—I would have two inspections instead of one, and I would make it that two or more shifts succeeding one another shall not be deemed to be one shift. If you reckon that as one shift it is very dangerous. If men work 24 hours, or three shifts, that is only considered one shift if they follow on.

9525. You think it may be read in that way, during 24 hours you need only have one inspection?—If they change at the working place.

9526. (*Mr. Ratcliffe Ellis.*) That would hardly be so. If the men change at the working place surely the next is a shift?—I should call it three shifts, but the Act says "two or more shifts are to be deemed to be one shift."

9527. (*Chairman.*) Do you think that Special Rule as altered by you ought to be made into a General Rule instead of General Rule 4?—That is a matter which perhaps you will allow me to deal with when I come to the Special Rules, because I have something to suggest, that a number of rules may be taken out of the Special Rules and made General Rules. They apply just the same all over England, and we could materially reduce them.

9528. I want to know whether you think that this particular Special Rule as altered by you ought to be put into the General Rules or ought to be incorporated in an Act of Parliament and made to apply throughout the kingdom?—Yes.

9529. You think it would be well that it should?—Yes.

9530. You also agree a great many other Special Rules might also be incorporated in the Act of Parliament, that the Special Rules might be decreased in number, and that the General Rules might be increased in number?—That is so, but I will come to that when you allow me to deal with the Special Rule question.

9531. Do you think that the districts assigned to the mine officials are too large, or that they can reasonably do the work required of them?—In some cases I have found the districts have been too large, and I have mentioned it to the managers, but it is not to the advantage of the manager of a well-managed colliery to have his districts too large. They know that it is not good commercially.

9532. You have no difficulty with your managers if you point out a district is too large? I understand you to say they are willing to meet you in that respect?—They are very good in that respect.

9533. With regard to accidents, you had one serious explosion, and with the exception of that there were only two other accidents from explosions of a very minor character. You had one explosion in which three people were killed?—I have been very fortunate within the last few years as regards explosions. I would like to show you a chart I have here. It shows that the high death rate is not due so much to explosions, but to falls of roof and sides, which is the most important point requiring remedial action.

9534. I am aware of that. It is the same all over the kingdom?—That chart shows the explosions compared with falls of roof and side; the deaths from explosions are a secondary matter.

9535. We are quite aware there are more deaths from falls of roof and sides, but for the moment we are dealing with explosions. For large explosions you say the record of your district is an extremely good one?—It has been good.

9536. With regard to the means of preventing explosions, have you anything to tell the Commission about watering?—Watering is little practised in my district, and what is done is carried out in a crude manner. They have simply a tub and a plug, and they pull it out and let it go. It is something like watering by driblets, instead of watering effectively. Watering the trains of coal has been suggested, but I am afraid that would not do for us. It would so injure the coal that it is not feasible.

9537-40. Watering the tubs in which the coal is?—Watering the train as it goes along, or before it leaves the working places. I think it would injure the coal. In the Blackwell explosion on the 10th November, 1895, a little watering had been done in front of the shot-hole. The flame went into the arching at the pit bottom, and turned sharply at an angle of 50 deg. This is important as showing that arching did not stop for it. It went through the arching and turned round at an angle of 50 deg., and went away again. At a very long distance we had some men killed in another district. I have seen some of the best

Digitized by Google

watered mines in South Wales, and yet have been able to raise a cloud of dust. I have been into South Wales, and I have seen the best watered mines they have got, but I found where a heap of dust lay on the road there was simply a damp film over it, something like slacking lime, and if you stick your foot or stick into it up came the dust just as much as ever. If watering is to be effective it must be swilling. That is about the word for it. You can go into some mines where watering is practiced, and if there is a heap of dust, and you kick it up, you will find a dust appears just like slack lime. You can spray water over it, but it makes a mackintosh over the top of it. As regards the effect of watering and the dryness of mines I have been making some tests with a hygrometer. Take the case of a mine which is 456 yards deep, and from the pit bottom to the working face it is 2½ miles. The one ventilating current I took for these experiments was 8,830 yards, or 5 miles. It is one of the largest I have, and I wanted to see what was the drying power of the air and also the degree of humidity. At the first working place the degree of humidity was 74, but at the last working place it was 86. You see what a quantity of moisture it had taken up. It would take too much time to analyse these tests in any way before you, but I thought myself they were interesting experiments which would be of value to the Commission. There was one point as to watering I would like to put before you. It has been said if you take a few hundred yards or a short distance of lengths of roadway in a large mine, and completely water that, saturate it, it would stop the explosion.

9541. It would stop the explosion, but it would not stop the afterdamp?—It would not stop the afterdamp. It depends upon that part of the roadway being kept in a wet state always. Recently in one mine in my district they have tried another experiment which I think deserves notice, and that is this: They are erecting iron doors in the roadway—or rather they are erected. I am not speaking of anything hypothetical. It is there in practice; it is no wild idea or scheme of my own. In the roadway they have iron doors erected, and as far as I can see at present that is a complete block to the explosion. The doors are at work always, day and night, and act automatically. Watering depends upon human fallibility and discipline. I refer to the watering of 200 or 300 yards of roadway to stop an explosion, and it is a question then if it will stop it. In the mine I am speaking of they have erected iron doors, and as far as I can see it is a feasible plan.

9542. The doors have the additional advantage of stopping the after-damp as well as the explosion?—They stop everything. There is no getting an explosion through. I feel convinced they will stop an explosion.

9543. Do they act automatically? Who shuts these doors?—It is not left to anyone. If it occurs in the middle of the night and there is no one in the mine they would act just the same.

9544. Are the doors kept open or shut?—Always shut, but you can get through them.

9545-6. Is this in the mine you spoke of that contains 8 miles of roadway?—It is not in that mine, but in one nearly as large.

9547. Do you suggest instead of watering that it would be desirable to place doors at certain intervals? What sort of intervals do you suggest?—I would not like to make any suggestions, but I simply bring it before the Commission, as we have the thing done and at work. It is the first thing of its kind to my knowledge.

9548. What distance are the doors from one another?—Apart?

9549. Yes?—There are two doors, of course, only a few yards, not far.

9550. (*Mr. Ratcliffe Ellis.*) Whereabouts are the doors?—In the main road.

9551. (*Sir Lindsay Wood.*) The main intake?—I cannot answer that. I think it is a return.

9552. (*Mr. Smillie.*) They cannot be in the return?—No, it cannot be in the return airway.

9553. (*Chairman.*) He says they are always kept shut?—I have not seen the doors myself. They have only just been erected.

9554. (*Mr. Cunynghame.*) Would an explosion slam them to?—It would slam them to, should they be left open.

9555. (*Chairman.*) Automatically? You said they were always shut. You say they are not always shut now, but that they are slammed automatically if an explosion occurs?—The doors are only just erected, and I have not seen them myself yet.

9556. That is a new idea?—It is a new idea altogether to me.

9557. It occurs to these managers that instead of watering their mine the best way of stopping an explosion would be to have these two doors placed somewhere in the roadway?—That is it. I thought it was right I am not in a position to go into details of where or how the doors are fixed.

9558. You do not know how these doors act; would you suggest that it might be another means besides watering of stopping an explosion?—Yes, but I would like to point out that I make no recommendation; I simply bring the fact before the Commission. It is quite new to me, and in fact the thing has only just been finished.

9559. Do you think it is a source of danger that dry and dusty mines in your district should not be watered at all?—If we are to have watering, it must be watering to a good extent.

9560. A small amount of water, you say, would do no good?—So far as stopping the explosion, no. To be effective it must be well done.

9561. You might have watering zones. A very wet zone of water would prevent an explosion passing only; it would not prevent the after-damp?—It is only to prevent the extent of the explosion *per se*. It does not interfere with the after-damp.

9562. At all events, you have had very few explosions in your district, and notwithstanding that comparative immunity from explosions, your dry and dusty mines are not watered?—Very little watering is done, and the mines are very dusty, some of them. This watering and dust is such a difficult question that I have made a note here—if the Commission on Coal Dust in 1894 could not come to any conclusion how can the inspectors be expected to give a solution of the difficulties; the inspectors have considered the question many times, and have made recommendations.

9563. You say if there was watering of the trams, that would injure the coal. I do not remember that having been said before. It is your opinion that the coal would be injured?—Yes, I think so, the soft coal—the house coal.

9564. Are you satisfied with the wagons that are used, with regard to their being dust-tight?—Yes, our wagons are fairly good in the district.

9565. With regard to ventilation, how about the first General Rule? Have you any remarks to make on that, or do you think it is sufficiently explicit?—I would like to read my notes upon that. General Rule 1:—This rule is too much dependent upon an opinion. It should be more definite. Lay down a percentage of each noxious gas as a standard which may not be exceeded in the air current when the mine is at work. With regard to the second part of the rule, the quantity of air is now to be measured once a month. If the quantity, why not the quality, and both entered in a book to be kept for the purpose. That is the question I put to myself: If you make a statutory regulation for the quantity, why not make a statutory regulation for the quality also? The quality could be tested by the small flame of an ordinary safety lamp burning either colza oil or a mixture of two-thirds colza and one-third paraffin oil. A blue cap of any size in a working-place to be the test of inadequate ventilation. That would probably be 2 per cent. If the air current in the working-place had that quantity of gas I should say that it was inadequate ventilation. A similar test for return airways, but a lower standard fixed for main returns.

9566. You mean there might be a small cap shown in the return air-ways, and yet you would say that the ventilation was sufficient?—I would not make the same standard for the working-place as I would for the return air-way. With regard to the return air-way, I

Digitized by Google

Mr. A. H. Stokes.

12 Dec. 1906.

do not wish to fix myself on any quantity, but I might suggest 3 per cent. or 4 per cent., and 2 per cent. for the working-place.

9567. 2 per cent. would cause a cap?—With the ordinary safety lamp burning colza oil or two-thirds colza oil and one-third paraffin. To decide this, if disputed at the time of inspection, two bottles may be taken, and the contents analysed. The analysis to be final. In fact, I would treat the ventilation in a mine in a similar way to what food is now treated in the market.

9568. It has been suggested to us by a good many inspectors that we should make the presence of a cap in all cases the test of an adequate amount of ventilation, whether in the return air-ways or any other air-way all over the mine in the air-ways?—I think I do do the same, but I make a little difference between the cap in the working-place and the cap in the main return.

9569. You say men ought to be taken away if there is a cap found in the working-place?—Certainly. In the air current.

9570. Now with regard to Rule 7; would you alter Rule 7 so as to provide in all cases where there was a cap that the men should be taken away from their work?—It would naturally follow. If the cap was a test of inadequate ventilation they must be withdrawn, because the place is inadequately ventilated.

9571. You would alter Rule 1 and Rule 7 to a very considerable extent. You would say the presence of a cap ought to be sufficient evidence in all cases of insufficient ventilation, and the men should always be taken away from their work when a cap appears?—Certainly no man has a right to work with a cap on his lamp. If there is a cap, let them put some more ventilation in and obliterate the cap.

9572. Do you find any difference of opinion as to what is a cap and what is not?—Yes; that is why I specify that it should be an ordinary safety lamp and the oil to be used.

9573-5. Naptha, for instance, would be too sensitive for a cap?—Spirit would. I would like to say that General Rule No. 1 seems to me very indefinite. What is an adequate amount of ventilation? Every manager has got his own opinion upon what is an adequate amount of ventilation. Let me have the cap, or the analysis, and then I have some standard to go upon, but to leave it as a matter of opinion, it is most difficult for those, like myself, who have to institute prosecutions on it. No one knows the difficulty of putting a matter of opinion into a General Rule. There should be a standard, and the standard I have named should be put in the rule, I think, and if that standard is broken, then that shall be the proof that the place is inadequately ventilated.

9576. With regard to the use of safety lamps, do you think they are sufficiently used in your district?—Here we have again another rule (General Rule 8) that depends upon a matter of opinion. The rule depends upon the word "likely," which is open to dispute. It should be all mines in which inflammable gas has been found; it shall not be allowable to work with naked lights in any parts of the mine other than in the main intake air-current of the mine for a distance not exceeding 100 yards from the downcast shaft. It appears to me the Secretary of State has power to do this now under the Act of 1896, if it were required by Special Rules, under Section 1 (a) and (e). The cost of safety lamp maintenance is about .75d. per day, or probably .64d. per ton. That is the maintenance. Candles cost ½d. per ton of coal. As regards screw locks, my district is one of the worst for the number of screw locks, but as there are so few cases of attempting to interfere with the screw, and no accident from wilfully opening the lamp has recently occurred, I have not taken legal proceedings to enforce the lead rivet, but am doing my best to persuade managers to abandon the screw lock. I the year 1904 I had a return of the lead rivets, which were 31,175, screw locks 22,701, magnetic 12,926. If anything is done with the lamps, I would say make it obligatory to put the lead rivets in, because, as far as I can see, it is the best system. It is the most easily opened, and it is certain of detection, and that is where its value comes. I have something to say now with respect to explosions and safety lamps. From the year 1858 to 1877 there was no year passed without a death from explosion of gas. Of course, I am speaking of my own district. Since 1877 there has been one period of five years—1888 to 1892 inclusive—without a single death from explosion; and for the last 20 years—1885 to 1905—there were only 20 deaths from explosions of gas. During the 20 years 1885 to 1905 there were 12 years without a single death from explosion of gas. The non-fatal accidents for 20 years previous to 1893 averaged 16·5 per year. For the last 12 years there has been an average of only 5·4 non-fatal explosions per year. In 1890 there were 33,287 safety lamps in use, or 62 per cent. of the underground workers using safety lamps. In 1904, the last statistics taken, there were 66,829 safety lamps in use, or 82 per cent. of the persons working underground using safety lamps. You see the result of the good work of the safety lamps in the reduction of the explosions. It cannot be said that the mines in my district are less fiery, for many of the smaller mines have been closed, and the majority of the new ones are large, and give off firedamp. In fact, the mines, I consider, are more fiery to-day than they were 20 years ago. To what, then, may this improvement be attributed? (1) To the greater use of safety lamps; (2) more careful supervision; (3) increased ventilation and more methodical distribution of the air current; (4) a general desire on the part of both masters and workmen to carry out rules and secure increased safety. I have now to deal with the strongest stumbling-block to the introduction of safety lamps, namely, a price-list which contains 1d., and in some cases nearly 2d., per ton for getting coal by the use of safety lamps. Thus, whenever I press managers to enforce General Rule 8, to use safety lamps, I am met with the price list. It is not only the 1d. or more per ton, but in some cases there is an additional 40 per cent. added. Thus nearly 1½d., or more is asked when safety lamps are introduced. This appears to me to be a tax upon safety, and a very serious prohibition on the use of safety lamps as a precautionary measure of security in mines where gas is only occasionally found.

(*Chairman.*) It is the rise in wages the men demand?

(*Witness.*) Have I not made it clear?

9577. (*Mr. Ratcliffe Ellis.*) You said "price-list"?—The price-list is the men's price-list. I thought it was understood at the table that a price-list at a colliery means the men's price-list.

9578. (*Mr. Enoch Edwards.*) They generally work at 1d. per ton?—Then there is the 40 per cent.; that is 1½d. It is near enough. I desire it to be clearly understood that I raise no question as to the value of the miner's labour or his remuneration for the conditions under which he works. My objection is to method. Owners do not object to the increased expense of providing and maintaining safety lamps free of cost for the use of workmen. Many managers having mines worked with open lights would like to be free to introduce safety lamps without an additional charge other than the provision and maintenance of the lamp. The setting of timber is always included in the getting price. Why not the use of safety lamps be included, and leave the manager free to use them or not, as the case requires? My experience leads me to suggest that every mine, after gas has once been found, should be worked solely by locked safety lamps; or, if this be too stringent or drastic a rule, I would say after the first ignition of gas.

9579. (*Chairman.*) For ever?—For ever. Give the dog his first bite, and then stop him. You will see the difficulty I am met with when I get a small explosion. The first thing I do is, I go to the manager and ask him to put in safety lamps. I think it is quite right for the men to have a price-list. I do not wish it to be understood for a moment that they should have no more. I have nothing to do with it; but it should not be a tax on safety. It should be like timber. There is no charge for timber; it is included in the price for the getting of the coal. They have to set all the timber that is necessary. Here is a special case of safety. Why should safety lamps not be included in the coal-getting—1d. or 2d., or any amount, whatever it is? It is nothing to me; it is the method I am making a point of, so that if I go to a manager and say, "Put in safety lamps," his reply can be, "To-morrow."

Digitized by Google

9580. He would do it if he had not to pay the 1½d. more to the men?—Yes. In times of bad trade he looks at it, and says, "How far?" and "How much do you want—this stall, or that stall, or the whole mine?"

9581-3. At the same time, this Mines Regulation Act is passed by Parliament for the safety of the miners, and it does not seem to me it is any answer on the part of the manager, if there is any real danger in working the mine by naked lights, to say he will have to pay 1½d. more in wages. It may be an unfortunate thing that the men should take that view, and insist upon 1½d. per ton, but at the same time it is very natural, because when they work with safety lamps the light is not so good as if they work with naked lights, and it rather impedes them in their work?—By all means give them all they ask for, but do not put it in this way.

(*Mr. Ratcliffe Ellis.*) I do not know about giving them all they ask for.

9584. (*Chairman.*) The men say: "It is a nuisance to us, and we have greater difficulty in getting the coal if we work with safety lamps. Therefore, if you insist upon our working with safety lamps, we insist upon having a certain extra remuneration for every ton of coal raised." That is a very natural thing for them to say; I am not saying whether it is wise or not, but, at all events, it is very natural. The master says, "No; I should be very glad to put in safety lamps if I thought there was some danger, but at the same time the danger is very slight, and I really cannot afford this 1½d. per ton." It does not appear to me that this is an answer. The fact remains the men are impeded in their work by using safety lamps, and if the men are impeded in their work, it is natural that they should wish for higher wages. I do not understand how you would meet that difficulty in any other way?—Take the large mines in Nottinghamshire; there is nothing of that sort upon a price-list, because they all work with safety lamps, and therefore it is in the getting price. When the price is settled, they can easily make it an inclusive price, and say, "That is our price, and you can either work with lamps or without them."

9586. Your suggestion, I think, rather is that all the mine-owners should be compelled to pay men the same price for coal, whether they work with naked lights or safety lamps?—That is what it comes to?—I have suggested they should nearly all work with safety lamps.

9587. If every mine in the kingdom worked with safety lamps there would be no difficulty about it, but at present I imagine that there are certain mines—perhaps very few—in which there is absolutely no necessity for having safety lamps at all, and in that case you may work with naked lights, but when you work with naked lights the men can get coal more easily, and consequently do not demand such a high price for coal-getting. I do not know why the owners should be obliged to pay the men when they work with naked lights for all the disadvantages which they are under when working with safety lamps?—In the remarks you have just made you have recalled to my mind a circumstance that has happened this year in my district. I had an explosion of gas, and four men were seriously burned. When it was investigated, the under-manager said—these were not his words, but this is the purport of what he said—"I have been here over eight years, and we have never seen a bit of gas in the mine." Here we have an explosion and four men burned. I say I would put safety lamps in every mine in which gas has been found.

9588. I understand that, but I do not understand your point about the price-list. I do not see how that is to be altered?—May I just go a little further, and then, perhaps, you will see my point. Miners say that the use of safety lamps materially interferes with their coal-getting. That they cannot get the same quantity of coal by the use of safety lamps as with candles, all other things being equal. I have endeavoured to ascertain if such a statement is borne out by actual experience, but I have not yet found a clear case of decreased quantity of coal worked due to the use of safety lamps. Take a concrete case: In 1897, men worked 203 shifts, using candles, and made 539 tons, which was equal to 2.66 tons per man. In 1898, at the same colliery, they worked 129 shifts, and made 294 tons, which was equal to 2.28 tons per man. Then they worked with safety lamps, and in the year 1899 there were 172 shifts worked, which made 538 tons, equal to 3.13 per man; in 1899, 185 shifts were worked, 563 tons made, which was equal to 3.04 tons per man, and in 1900 there were 165 shifts, they made 497 tons, which was equal to 3.01 tons per man. Take another mine, working with candles, in 1887, there were 9,841 shifts made, and in that time the tons raised were equal to 2.93 tons per man. In 1887, the same year, they were put on with lamps, and they worked 5,591 shifts and made 3.14 tons per man. These are facts which go to show the exact opposite to what you have just suggested.

9589. It is also a fact that the men prefer to work with naked lights. There is some reason for preferring it. It is curious that these men directly the lamps are put in get 1½d. a ton more for their work, but at the same time they themselves very often object to safety lamps being put in, which would look as if the safety lamp made the difference quite to them of 1½d. per ton.

(*Mr. F. L. Davis.*) It is true they allege this, but Mr. Stokes finds out it is not so.

(*Chairman.*) It is curious to find that the men object to the safety lamps, although they know they will get 1½d. per ton more.

(*Mr. Smillie.*) They are willing to give away the 1½d. per ton if you take them out?

(*Witness.*) No; I have had different experience to that.

Mr. Ratcliffe Ellis.) I suppose you know cases where the men have given up the 1½d. per ton?

(*Mr. Smillie.*) Yes, and thousands would give it up gladly.

9590-4. (*Chairman.*) With regard to defective forms of lamps; have you had any accidents with lamps?—There are now certain types of lamps which have been proved to be safe under all ordinary conditions. It is not so much the type as the cleaning and putting together where the safety comes in, and extra precautions should be taken in this direction. I do not know whether the Commission have before them the safety lamp tests, Appendix 24 of the Report of the Royal Commission on Accidents in Mines in 1879. There has just been published a very valuable volume of experiments in Belgium also, and I would like to bring it to the notice of the Commission. I would like them to refer those two publications. If a new testing station for explosives is proposed at any time to be erected, I would suggest that provision also be made for testing safety lamps at the same station, but the station should be fixed where mine gas is accessible. That is all I have on safety lamps until I get to the question of falls of roof and side.

9595. Do you say you have had any accidents from defective forms of lamps or from screw locks being opened?—Not as regards screw locks, but we have had accidents from defective lamps being sent into the mine. I think a point was made by one of the inspectors whom you have had before you about the gauze being left out. In my district the bottom of the gauze has a copper ring in all the lamps, and the copper ring comes down over the top of the glass, so that if the lamp is shielded with a bonnet a man has only to look at the glass and he can see if the gauze is in or not, because the ring goes over the top of the glass and can be easily seen. The old gauze just lay on the top of the glass.

9596-7. In some lamps they have a better system—that is to say, you cannot put the lamp together at all unless the gauze is in. If the gauze is not in, the lamp, so to speak, falls to pieces—you cannot screw it up properly?—It is very difficult to know whether the gauze is in or not in some lamps.

9598. I quite understand that. I was merely suggesting that there was a better system. With regard to shot firing, I see you have expressed your opinion with regard to miss-fire shots. You say in your last Report: "I have strongly recommended for a long time that the explosive of a missed-fire shot should be recovered under the personal superintendence of an official of the mine, who should make a written report of the recovery or disposal of the unexploded charge." Have you any special rules about miss-fire shots or shot-firing?—Yes. There are a number of Special Rules

Digitized by Google

Mr. A. H. Stokes. 12 Dec. 1906.

about miss-fire shots and about shot-firing. What we are doing now, though we have not got a Special Rule for it, is this: The detonators are counted out to the officials who fire, and the number of shots fired and the number of detonators returned are also accounted for. Then we have to account for the miss-fire shot. There have been some serious cases with misfires; detonators have gone astray, and even the explosive has got here in London into gentlemen's kitchens, I believe, but now there is an instruction that the deputy or the official who fires the shot must report as to the recovery of the detonator and the recovery of the explosive. I see it was suggested by someone that there should be a string to the detonator.

9599. (*Mr. Ratcliffe Ellis.*) To the prop?—I think I am right; there was a string to the fuse, but that was tried some years ago in my district at one mine. Now we do not do it, but what we do is this: I have asked them all to have the leads—I presume you know what the leads are to the detonators, the 4 ft. wires that run to the detonators—white, and not black. They were originally black, but when a miss-fire shot was blown down it was difficult to find out these two wires. Now we are having them white, so that when the miss-fire shots are down we can easily, or at least more easily, find them.

9600. (*Chairman.*) Would you prohibit shot-firing during shifts?—I have some notes on that if you will allow me to read them.

9601. Certainly?—General Rule 12 and the Explosives Order if properly framed should be sufficient to meet what is required for safety. The words "indicative of danger" are a most serious defect in the Order. At a colliery in Warwickshire an explosion occurred in a heading, one man was slightly burnt and gas was left burning at the back of the heading. I afterwards tried to enforce the Explosives in Coal Mines Order. The magistrates dismissed the case, their decision being that the gas was not "gas in such quantity as to be indicative of danger." The decision to me is a startling interpretation of the Order. The word "indicative," in its ordinary sense, means pointing out, or giving intimation of something not visible or obvious, and I fail to recognise that gas which has exploded, and not only singed a man, but caused him and his fellow workmen to beat a hasty retreat, is not gas "indicative of danger". The suggestions I would make are these: That the purchase, distribution, and use of explosives should be entirely in the hands of the owners, managers, and officials of the mine; all shots, of whatever description, should be fired by an official of the mine; all shots on roadways, and for gate ripping or brushing, should be fired when the ordinary shift of workmen are out of the mine. That leaves only the coal face shots to be fired during the working shift. It will be obvious, I am sure, to you all that the coal face is the least dusty part there is in a mine, for the simple reason that it is like ourselves—it gets its face washed every day. You are constantly moving the coal face; you are constantly getting a fresh clean face of coal, and the goaf is being filled up, and the most unlikely place for dust is the coal face. I have divided my suggestion so that the shots, under certain conditions, can be fired during the shifts in the coal face. That leaves the workmen at liberty to get their coal, but all brushing, ripping, or shots fired on roads must be fired when the workmen are out of the mine, except those engaged in shot firing.

9602. Do you want to say anything more about shot firing?—We have provided for it in Special Rules Nos. 50 and 51.

9603-4. Do you think anything might be done by legislation with a view to greater safety in shot firing? Do you think there is any general rule which could be put into the Act of Parliament?—I think that the Secretary of State has all the necessary power to do it without anything more; but it is a legal question.

9605. (*Mr. Ratcliffe Ellis.*) He can make such additions as he thinks necessary to prohibit explosions?—It appears to me that the Secretary of State has all the power necessary.

(*Chairman.*) With regard to the use of explosives, he can do what he cannot do with regard to the Special Rules and the General Rules—he can make an Order on his own authority.

(*Mr. Ratcliffe Ellis.*) If you look at the end of the Act of 1896, you will find the last section gives him very large powers with reference to explosives. Section 6 is: "A Secretary of State, on being satisfied that any explosive is, or is likely to become, dangerous, may, by order, of which notice shall be given in such manner as he may direct, prohibit the use thereof in any mine, or in any class of mines, either absolutely or subject to conditions, and the provision of the principal Act as to contravention of general rules shall apply to contraventions of any such prohibitions."

(*Chairman.*) Do you consider that that is a satisfactory state of the law, and that the Secretary of State is given sufficient power?

(*Mr. Ratcliffe Ellis.*) Under the powers of that Act it is merely as to explosives.

9606-9. With regard to falls of roof and ground, I see there are a very large number of accidents in your district?—Yes.

9610. The Midland and the Newcastle districts have the two lowest percentages of death rate for accidents from falls of ground; but still there are a very large number of accidents. You come out very well; the variation has been very slight in your district from year to year. There is less variation in your district than in any other?—That is for the last few years. The improvement is still more marked if you take a longer period.

9611-5. In 1895 you had the fewest accidents. What have you to say as regards further precautions?—The Midland district stands the best in the kingdom, but the death rate is high. My district is the greatest coal-raising district in the kingdom, and we have both good and bad roofs. I attribute the good record to discipline, fairly good supervision, and a general willingness on the part of workmen to obey the Rules, and officials to enforce them. The recent Timbering Rules have, in my opinion, had little, if any, effect in reducing the death rate. The regulations were practically being carried out, so far as props and sprags are concerned, before the Rules came into force. My Special Rule No. 75, made in 1887, carried out the effect of the new Timbering Rules. If the death rates are to be reduced, further precautionary measures appear to be necessary. The Timbering Rules were established in November, 1901. I have seen it remarked that a tendency "of too much detail may encourage the danger of thinking that if the workman has done those things he has done enough and that he need not trouble himself about doing anything more." But this is better than giving no instructions whatever where the tendency would be for the man to think he was under no obligation to do anything, and that it was left to his judgment alone. I would like now to show you what I should think was a model timbering notice in my district. That I have persuaded some of the managers to put up.

——— COLLIERY.

TIMBERING NOTICE UNDER SPECIAL RULE 41 (A).

Sprags.—Holing sprags shall be set not more than 6 ft. apart, measured from centre to centre, and when the seam is holed under a distance of 5 ft. 6 in. from the coal face, additional sprags are to be set to support the coal holed.

When sprags are set which only support the upper portion of the seam, short sprags shall be set in addition, to support the lower portion of the seam.

Props.—Props in the working places shall be set not more than 6 ft. apart, measured from centre to centre in a line parallel with the coal face, and each row of props not more than 5 ft. apart, measured from centre to centre. A row shall be set on each side of the tram line in the benks, and there shall always be at least three rows in that part of the gate which is included in the term "stall" under Special Rule 67.

The loading at the coal face shall not be continued beyond the distance where another face prop is required.

Bars.—Where bars are required to be used, they shall be set not more than 6 ft. apart, measured from centre to centre.

Lids.—There shall be a good and suitable lid on every prop set for supporting the roof, unless the prop be set under a bar.

Digitized by Google

Packs.—Solid packs to be built three yards long on the gate side. Bank packs two yards long, with four yards waste between.

When the roof or sides of a roadway are being repaired, a centre prop shall be set on the side or sides of the portion where workmen are required to work or pass during the shift.

Additional props and bars shall be set when and where required, but the distances fixed by this notice shall not on any account be exceeded.

————, Manager.

October, 1903.

This notice deals with timbering very effectively, but on the other hand, I have a notice of this sort: "The maximum distance for all seams at this pit is 6ft. apart, as provided in Special Rule 41." To me that is perfectly ridiculous; it is an evasion of the spirit of the whole of the Timbering Rules, but it complies with the law. Some drastic measures should be taken. There is no scarcity of timber, but want of its application. It should be set directly it is practicable to set it. The question appears to be whether all working-places should not be barred—systematically barred. I presume, my Lord, you know what barring is. It is fixing props or sets straight up, and bars across the top. If systematic timbering is to be continued, the notice should relate to all classes of timber, props, lids, bars, sprags, and other roof supports. The notice should be subject to approval by the inspector. The loss of life from falls is ·768 per 1,000 persons employed underground, and this calls for stringent measures to reduce such loss. There should be more frequent official visits to the working-places while men are at work. Catch props should be always set when renewing or removing timber in a roadway. I do not know whether you understand that. Supposing you have a roadway in which you have repairs to do, timber to be taken down or bars to be taken down and repaired, where you do such repairs you must fore-set one or two props each way, so that when you take this part of the roof down you always have a place of safety to fall back. If precautionary measures were not taken, a man fell into the roadway, sometimes the roof came further than he thought, and it killed him. Now if you have to take 2 yards out of a roadway, each side of that you must set a couple of props to protect you for safety on either side. That is what is meant by fore-setting. The use of the ringer and chain for withdrawing timber has been in use in the district for a long term of years, and it is to this use that I in a large measure credit the favourable position of the district. That is our Special Rule, No. 76. The working-places are now largely supported by props and lids. I see no reason why the barring of all working places should not be compulsory. It is done in many mines with bad roof, and why should it not be done in all mines? 61 per cent. of the deaths from falls last year occurred at the working face. A short time ago a report on the timbering of the now notorious Courrieres mine was published and largely distributed to collieries, showing what good results they had obtained. That is in the General Report for 1889. I do not know any mine in England where the system was adopted, and it appeared to be generally considered as not applicable to mines in my district. Although the death-rate from falls at Courrieres was exceptionally low, yet there are mines in Nottinghamshire which are quite as good as Courrieres.

9616. Do they have this barring system in those mines?—In Nottinghamshire?

9617. Yes?—In some of them, but not in all of them.

9618-9. Where the statistics are very good, do they have this barring system?—Not in all the mines. In the Courrieres the death-rate is ·39 per 1,000,000 tons. I have taken four mines in Nottinghamshire which give ·36, so that they have beaten it.

9620. (*Mr. Ratcliffe Ellis.*) Do you know the condition of the roof at Courrieres?—I do not.

9621. You do not know how it compares with Nottingham. I mean, you do not know whether the physical difficulties are alike?—No. I only give the statistics given at Courrieres to show what we can do. The deaths from falls in the last ten years were 53 per cent. of total underground deaths in the United Kingdom, and the deaths from explosives was ·06. I only mention this to show the Commission how important the subject of falls is. It is one of the most important things that have come before you, I am sure—that is, the death-rate from falls: it is so very heavy. The miners have always objected to the use of safety lamps on the ground of increased danger from falls of roof and side. I have occasionally placed before them statistics showing that such anticipated increase was groundless. I took a group of six mines, some of them with bad roof, where they worked eight years with candles, and they raised 4,831,325 tons, or say 5,000,000 tons. The deaths from falls were 13 during that eight years, and the tons per life lost were 371,640. This group of six mines, in consequence of a heavy explosion, had to go under safety lamps. I then took another period of eight years, during which time they worked with safety lamps, and they raised nearly the same quantity of coal, namely, 4,702,846, and they only had 12 deaths, and the tons raised per life lost were 391,904. Therefore the safety lamps beat the candles by one death in eight years. I think I have more statistics. The same group of six mines, in the eight years when they worked with candles, had 14 explosions—15 injured and 46 killed. They then worked with safety lamps during the next eight years, and there was not an explosion, not a single person killed, nor a single person injured. If that is not a strong argument for working with safety lamps, I cannot find a stronger one. The above figures are for the same mines, and, to a large extent, the same workmen, working under the three conditions, same pits, same roof, and same system of work. I have made photometric tests with candles and safety lamps, and found a tallow candle, of the size 18 to the lb., when cleanly snuffed, was practically the same as a safety lamp. A similar experiment with a wax composite candle gave 1·10 of that of the safety lamp. The wax composite beat the safety lamp.

Mr. A. H. Stokes. 12 Dec. 1906.

9622. (*Mr. Cunynghame.*) It was not the same all round the sphere. The candle would cause light upwards, whereas a safety lamp is very different?—This is a photometric test.

9623. This was a horizontal test?—Exactly.

9624-5. Upwards there is that advantage with a candle, that it causes light on the roof which a lamp has a difficulty in doing?—That is true, but there is this about a candle: if a man is examining a roof with a candle, he must keep it down, he should not keep it up; but if he is examining with a safety lamp, the higher he raises it up the better.

9626. (*Mr. Smillie.*) In naked-light collieries, you think the further he keeps his candle away from the roof the better?—Yes, or he will get his head singed some day with gas. Is it not patent?

9627. If there is gas in coal it will be at the top?—Yes.

9628. But you do not expect gas to be at the face?—Where do our explosions come from? I have given eight years with candles, and I have had 14 explosions, 15 killed, and 46 injured, and I have had eight years under the very same conditions in every shape and way with safety lamps, and I have had no explosions, none injured or killed. Had safety lamps been in use the whole time we should have saved 46 lives, 15 being injured, and 14 explosions.

9629-30. Do you hold a person can examine a roof for cracks, fissures, and dangers as well with a safety lamp as he can with a candle or a naked light?—I think I did not make myself clear upon that. I took eight years with the same group of mines with candles, and I have 13 deaths from falls. I took eight years with safety lamps, and I only had 12 deaths from falls.

9631. (*Mr. Enoch Edwards.*) The Commission is pretty well agreed that in gassy mines there should be lamps?—You must remember another thing: in a well-ventilated mine, with a candle, a man has to shade his candle from the wind, whereas with a safety lamp he can stick it anywhere.

(*Mr. Cunynghame.*) I am not arguing in favour of the candle. I only wanted to understand the photometric test.

9632. (*Mr. Enoch Edwards.*) A man cannot put a lamp anywhere?—I do not mean he can put it on the floor.

9633. You do not mean he can put it anywhere?—I was wrong when I said "anywhere." If you have a

Digitized by Google

Mr. A. H. Stokes.

12 Dec. 1903.

prop up with the wind coming this way, you must shade your candle or it will soon burn out, but with a safety lamp you can sling it up in front and shine the lamp this way or that way. That is what I really meant. The other photometric test I made was with the standard candle taken as one: a tallow candle 18 equals 1 lb. when it was clean snuffed, gave a maximum light of 1·30. A safety lamp with colza and petroleum gave ·77, and with safety lamp oil it gave ·85, and with another oil it gave 1·32. Then another tallow candle I tried immediately after being snuffed gave 1·66 of the standard, and 10 minutes after it gave 1·04, and 30 minutes after it gave ·30. These are all recorded in the transactions of the Institute, but I desire to bring them to your notice.

9634. (*Dr. Haldane.*) These are in terms of the Board of Trade standard candle?—Yes.

9635. (*Mr. Smillie.*) Did you test an ordinary little open light—little oil lamps?— Do you mean the Scotch oil lamp?

9636. Yes?—No, I did not not take the Scotch oil lamp.

9637. You have not a test of it?—I have had to prohibit Scotchmen using Scotch oil lamps in my district, because they stick them on their cap and then go near the roof. I would not mind if they stick them on their foot, but I do object to them sticking them on their cap.

9638. It would look very foolish on their foot?—Yes.

9639. (*Chairman.*) Have you anything more to say with regard to that?—No.

9640. Would you have a special class of men to supervise timbering, or do you think the men ought to set the props themselves?—On no consideration. The timbering is entirely in the workmen's hands, and I think I can show you where it would be wrong to place it in the officials' hands. They may superintend it, they may supervise it, but where a workman is working in a stall, and they are loading up the coal, and every few feet the roof wants a further prop set. If left to an official the workman might say, "We will leave it for him," and then it is too late and there is a fall.

9641. With regard to electric coal-cutters, it has been suggested that they are sometimes dangerous because of the sparks, but I see that you say the danger from sparks can be avoided by special machinery, and you think that there is no necessity for any danger from sparks from electric coal-cutters?—There are two methods of meeting that: one is to have the electric cutter enclosed, hermetically sealed. That is one way if you want electricity in the coal face, but there is another way of meeting it, and the question is whether it is not the better way; that is, to take your electricity so far in-bye and then work a compressor—a small air compressor—and work the motor in the coal face by compressed air.

9642. (*Mr. Ratcliffe Ellis.*) Work the coal-cutter by compressed air?—Yes.

9643. (*Chairman.*) What have you to say about haulage accidents?—That I take to include trams and tubs?

9644. Yes?—The accidents due to trams and tubs are far too many. They mostly concern young persons. Many are purely accidental, and a number are due to want of care and experience of the boys and young persons engaged in moving the trams and tubs. There should always be at least three inches of buffer at each end of a tub, so that boys, in coupling, may not have their arms broken or injured, or in some cases the head crushed. Over or under-chains should be compulsory on all trains descending an incline roadway. I do not know whether you understand what I mean by "over-chains."

9645. That is a chain that connects the tubs on top?—From one to another to connect the tubs. In going up we use what is called a "drag"; that is, it drags behind, and if the rope breaks or the tubs come uncoupled, they go back on to the drag and it tips them up. In coming down you could not put a drag in front, and a drag behind would be useless. Instead of that we place over the whole length of the tubs a chain, and if couplers breaks loose the chain holds them together. Automatic stop blocks should be placed at intervals upon all ascending roadways when one line of rails is exclusively used for ascending tubs. Then I would like to say this: They do not allow boys down under 13, and we are getting it in the mines that they are not taking them down under 14, because of the time limit in getting them down and to work. I should very much like to see these little fellows have 12 months on the surface before they go underground, to accustom them to the use of tubs and coal and the movements of the tubs. It is very sad to see these little fellows injured for life, going down in darkness and transferred from the school to inside the pit. It would be much better if we could let them all have 12 months on the surface to accustom them to the tubs and the movements of the things. I should like to see that made compulsory. I do not see there would be any hardship whatever in the lads being 12 months on the surface before they went into the mine.

9646. Have you any other remark to make?—I have no more upon that.

9647. Then with regard to setting up special rules; it takes a long time, I understand, for a Special Rule to be established. Have you any suggestions for expediting the establishment of special rules?—I have. I think many of the alterations I have suggested might be met by a model code of special rules, applicable to all mines, leaving the rules required for any particular local work or system of contract to be dealt with by the district inspector in the usual way and as a supplementary code of special rules. The quarries have a model code, and I do not see why coal mines could not have a model code. Any additional code might be framed locally by a board chosen from the district to deal only with local requirements. The model code I would suggest should be first drawn up by the Secretary of State and the staff of inspectors of the districts and they should be then submitted to the owners, who would send in their objections and amendments, and also to the workmen, who would do the same and send in their objections and amendments, and those would then be considered by the Secretary of State and his staff, and any points remaining in dispute should be dealt with by a joint meeting of the representatives of all parties. I do not see why the workmen should not have a say in these things as well as anybody else.

9648. Do you think that the Secretary of State should have the upper hand, and that if the workmen and the owners disagree they should have an arbitration between them?

(*Mr. Ratcliffe Ellis.*) Supposing the owners and the men agreed, but they did not agree with the Secretary of State.

9649. (*Chairman.*) That would be another point, too. If the owners and men agreed and the Secretary of State disagreed, then would you say that the matter should be submitted to arbitration?—I have hardly gone that far, because I quite expected that after all this had been done there would be no disagreement. You think the Secretary of State would not disagree?—I should think they would mutually come to some arrangement. It is only a rough sketch I have given.

9650. Do you agree with the present system which compels the Secretary of State to go to arbitration if his views are not accepted?—The present system is far too cumbrous in every shape and way.

9651. Would you leave the Secretary of State at the top of the tree, or would you compel him to go to arbitration?—Should he be able, as he can under the Factory Act, to impose his will upon the owners or would you compel him to go to arbitration if there was any difference of opinion?—It is a matter I have not carried further than this, but there is one thing I would like to put before you. We have a model code of quarry rules now for the kingdom, and when a code of special rules is once established for mines such code would be the code for the district.

9652. Every time a pit was opened in that particular district, you think you should not have to go through the whole business of establishing special rules for that pit, but, in the absence of any strong reason to the contrary, local codes should apply?—Certainly.

9653. (*Mr. F. L. Davis.*) Do I understand you to suggest that in every case any new special rule should be proposed by the inspectors?—The Secretary of State and the inspectors should first draw up the code. They

Digitized by Google

should be the greatest experts in rules to prevent accidents.

9654. I thought you were speaking of any new rules for the safety and discipline that might be thought necessary by the owners, and that then the owners would propose them?—I take it that a model code for Great Britain would be drawn up.

9655. (*Mr. Ratcliffe Ellis.*) I thought you said a district in Great Britain?—You may have them for the district or for Great Britain.

9656. There is a great difference between those?—You may draw up a model code for a district or for Great Britain.

9657. (*Chairman.*) The code for Great Britain would be, first of all, settled between the inspectors and the Secretary of State, and then they would submit the conclusions they had arrived at to the owners and the men, as I understand. That is your suggestion for the whole of the kingdom?—Yes.

9658. With regard to special rules for localities, what would you do?—Exactly the same thing.

9659. Begin with the Secretary of State and in the same way?—Yes.

9660. And have the owners and the men as supervisers afterwards?—Yes, exactly in the same way, but the final step in case of dispute I have not considered.

9661-2. With regard to investigation into mining accidents, the Secretary of State has power under Section 45, if he pleases, but it is left entirely to him whether he will do so or not, to have a second inquiry. Do you think it ought to be left entirely to the Secretary of State as to whether there should be a second inquiry or not? Do you think the men or the owners, or persons interested, should be entitled, as a matter of right, to demand a second inquiry?—I think it should be entirely left to the Secretary of State for this reason: If the inspector is not satisfied with the coroner's inquiry he would represent it to the Secretary of State. If the men were not satisfied with the coroner's inquiry they would represent to to the Secretary of State, and if the owners were not satisfied with the coroner's inquiry they would do so, and I am quite sure the inquiry would never be refused if there was the slightest ground for complaint.

9663. In your experience have you come across any cases in which you think the facts were not fully brought out before coroners' inquests?—I think the coroners in my district are very good indeed. They give every latitude; but there is one thing I would like to see, I do not say compulsory, but I have named it frequently; I have told the miners' agents in my district that they or their representatives should always be at an inquest.

9664. (*Mr. Ratcliffe Ellis.*) Do you wish it to be compulsory that they should be there, not that they should have the right? They have the right now?—They are beginning to exercise it more than they did, and I have told them that they should. It is only right when a man is in their Union, the least thing they can do for him is to go there and represent him. I have pressed every miners' agent in my dis-district to attend inquests. With regard to the coroners asking for workmen's authority, one coroner in my district did ask for the authority of the majority of workmen, and I told the miners' agent to go into the next room and tell the widow to write out a paper that he was to represent her, which she did, and he brought it in, and there was no difficulty.

9665. It has been suggested that the necessity for a coroner's jury viewing the body might be done away with, because it leads to coroner's inquests being held before all the evidence can be got together, and that, in fact, it leads to hurrying the inquest?—Yes, I quite agree with that.

9666. If inquests are sometimes hurried it would rather seem, would it not, as if occasionally the whole circumstances could not be gone into at the inquest?—In that case the inspector—and I have done it myself—would have asked for an adjournment. I have done so when I have seen a case of that sort.

Rescue

9667. (*Chairman.*) Now about rescue work. Do you know anything about these matters and the apparatus used in connection with the same?—Yes, I have some points that I would like to bring before you about ambulance and rescue work: Every manager, under-manager, and all officials of the mine should hold an ambulance certificate, and with the manager and under-manager it should be a condition precedent to his obtaining his certificate as a manager or under-manager. I believe the first ambulance classes formed in connection with mines were established in the Midland district early in 1878, and the first certificate granted to a manager in the district was in October, 1878. My own ambulance certificate is dated 30th January, 1879. In 1889 there were over 3,000 ambulance men in the district; now probably over 6,000. The greater part of the officials in my district are ambulance men. I seldom meet an official who is not an ambulance man now in my district. There is one thing I would like to say before I go on to the rescue work and the breathing apparatus. I do not want to be taken to say anything that would in the slightest way discourage anything of this sort, because I am far from it, I am just the opposite. It appears to me that the various apparatus that men are putting on for rescue work are very good indeed for shutting a door, or for restoring ventilation and for exploring a little in advance, but for the actual rescue of life I have not yet seen the great advantage of it. I will try to explain what I mean. Supposing I had to rescue a man half a mile away from me, and I suspected that he was still alive, or at least I knew that his body was there, I should not put such apparatus on to fetch him out, because I should say to myself, if it is safe for me to bring an injured man through this atmosphere, it is safe for me to go without anything, but if the atmosphere is so deadly I cannot go without all this apparatus upon me the man cannot live in it, and he must be dead, and I will not risk my life to fetch a dead man out. I have been in rescue work unfortunately, but in the most serious case that I was ever in I should not have put the apparatus on. I went without it. There should not be too much put upon that point. As regards restoring ventilation, it is most valuable. There is one point I wish to describe as regards the shutting up of mines. That comes under the same heading, rescue work and ambulance. We had a serious fire at Whitwick Colliery in 1898, and unfortunately we lost thirty-five lives. The fire was in the pit. I will just read my note upon it:—In case of explosion or fire and the mine becoming dangerous to the explorers, and no certainty being assured that persons may be alive in the mine, a jury of colliery managers should be summoned to meet, and after the conditions of the mine and work of rescue have been placed before them, a decision should be taken as to whether the work of rescue shall be continued or the mine or part of the mine sealed up. At Whitwick we were in a very serious position. We had the mine on fire, and we had thirty-five men beyond. We had not the slightest idea whether they were alive or dead—probably alive for a time. The men were working at this fire, and when I went down to it they had worked many hours, perhaps twenty-four hours or so, and I do not think they had gone eighteen inches; but what was more unfortunate, I heard some very curious sounds, which I certainly kept to myself, but from which I knew that explosions were going on up above, and the question was what were we to do—were we to seal those thirty-five men up or go on? If we went on we might lose another fifty, as was done at Baddesley. There twenty-three lives were lost in trying to rescue nine. Should we do this again at Whitwick? I felt the responsibility of it, and knew that everybody would say to me: "You had similar experience at Baddesley, where twenty-three lives were lost, and now they have done it again." At night-time I sent out a note to all the colliery managers within easy distance of the colliery, and called them for eight o'clock the next morning, when we had a consultation. The case was put before them, and the decision was to seal up the mine. We found afterwards that we were right when we found the men. I think in such cases with regard to the sealing up of mines the suggestion I have offered may be worthy of consideration as to whether a jury of managers should not be called together.

(*Mr. Enoch Edwards.*) Before you flood it or close it up you should have a consultation with the managers round.

9668. (*Mr. Ratcliffe Ellis.*) Before that is done you should consult with the adjoining managers?—Yes; I did at Whitwick. I took a jury of managers.

Digitized by Google

Mr. A. H. Stokes.

12 Dec. 1906.

9669. (*Mr. Enoch Edwards.*) You think you should do the same thing when you have to flood a mine when it is on fire?—Yes; before it is sealed up.

9670. (*Mr. Cunynghame.*) It is not suggested as a compulsory thing, but as a wise thing to do.

(*Mr. Enoch Edwards.*) There might be an instruction to the inspector that on his own initiative he had better not do it unless he could take consultation with other people all round. It is a serious thing to have to decide whether to close up a mine or no. If there are a lot of men you know living, it is a great responsibility for one man to take on his shoulders. In Mr. Stokes' case he thinks it desirable where it can be done that the managers round about should be willing to have a consultation.

(*Mr. Ratcliffe Ellis.*) I can scarcely conceive a manager taking that responsibility himself.

9671. (*Mr. Enoch Edwards.*) Mr. Stokes said they did at Baddesley?—At Baddesley we lost twenty-three lives before sealing up.

9672. (*Dr. Haldane.*) After the ventilation was reversed at Whitwick it was sealed up?—We reversed the ventilation first.

9673. You could not stop the fire?—We took the opinion of sixteen managers, whom we called together, because we knew if we reversed we might kill; the possibility was if we reversed we killed. We were going to block up the men from ever getting out if we reversed the ventilation, because we drove the noxious gases back into the roadways through which they would come out. I have not the plan with me.

9674. You would drive fresh air through the return?—And through the workings. It might bring the smoke back on to us, so we retired. We got a long string, and gave instructions as soon as you pull the door to, retire quickly to the pit bottom. They did it, and went. That was after we decided there was no hope. The question was, whether we should go on and run the risk of considerable loss of life.

9675. (*Chairman.*) Now with regard to health?—As to ankylostomiasis, have you any trace of that disease?—It was supposed that we had a case in the district, but it turned out it was not so. There is one thing I would like to say: in some mines they are making little closets for the men. It is only wanted for the men and boys on the roadway. With regard to the men in the working faces, the best thing the men can do is to ease nature in the working places and bury it in the goaf, where it is buried for ever.

9676. You have nothing to tell us with regard to that?—No, except we are taking precautionary measures, and looking out for it.

9677. With regard to the examination system, are you satisfied with the working of the Examination Board in your district?—No, not as regards the system.

9678. Will you let us know what you have to say upon that?—Candidates should qualify in special subjects, such as ventilation, safety lamps, gas, etc., and not depend upon their total marks to qualify.

9679. That is not so everywhere—in some places they do not depend upon their total marks? In your district they do?—If they failed in certain subjects they would be plucked. There should not be two descriptions of managers' certificates—viz.: one for fiery and one for non-fiery mines. A man is not worthy of a manager's certificate if he does not understand how to deal with gas, dust, and ventilation. I do not know whether I am right, but it appeared to me that the master of a sailing vessel with his certificate is quite good enough to be the master of a Cunarder or a P. and O. steamer; also, that a doctor's diploma is as good in one place as another. I found another difficulty. If experience in a fiery mine is to be obligatory in this way, there are a large number of pupils in Nottinghamshire in what I should say are fiery mines; but if the manager should have to give one of those pupils a testimonial when he went to the examiners that he had been at a fiery mine, he would not care to. I am upon the question whether the manager likes to call his mine a fiery mine. Many of them do not, and to me it is absurd that there should be any difference. A manager is not worthy of consideration if he cannot manage a fiery mine. The suggestions I have to make upon that are these: One Board for Scotland, and one Board of the rest of Great Britain, who would appoint examiners to conduct the examination, say, twice a year. The under-managers' examination to be held locally, one of the examiners travelling to the local centre for the *viva voce* examination. Examination would be the same, with the exception of terms in mining, and these the examiners would be qualified to understand the meaning. There are differences in terms in districts upon certain things; but the examiners would understand those, and this is not so with all districts. The terms are the same in many. I have, I think, six names for one instrument in my district—that is, the backstay, or drag, that goes behind tubs. Mining is of a very general character, and there would be no difficulty in, say, four or five examiners drawing up questions and conducting the examination, acting under a Central Board. It is done so now with the South Kensington examination, and I can speak from personal knowledge that it is practicable, for I have assisted my late colleague, Sir C. le Neve Foster, in the examination of hundreds of students' papers from all parts of Great Britain. The printed questions for the written portion of the examination should be identical for the whole kingdom. I have here some figures which I should like to pass to you. You will see from those figures that for five years there were in Great Britain 44 per cent. of the first-class men passed by Scotland and 32 per cent. of the second-class men passed by Scotland. Last year, 1905, there were in the first class—I am not giving quite all the figures—204 East and West Scotland examined, and 83 passed, and in Great Britain there were 502 examined, and 191 passed; therefore, Scotland passed 43 per cent. of the first class, and in the second class they passed 31 per cent. There must be something wrong somewhere when such a large percentage are passed like that. Nearly one-half the managers that are being sent out are passed in Scotland.

9680. To what do you attribute that? Do you suggest that the examination is much more easy in Scotland?—It appears to me either the examination is easy or the examiners are easier.

9681. (*Mr. Enoch Edwards.*) Or the men better?—I can speak to that, for I have a few Scotsmen who came down to my district, and certainly their intelligence has not impressed me in any way.

9682. (*Mr. Smillie.*) What is the proportion presented for examination as between Scotland and the rest of Great Britain? There are 204 presented in Scotland?—Nearly half.

(*Chairman.*) There are about the same proportion passed. There is not a very great difference between the proportion of passes to failures in Great Britain, but what is pointed out is that almost half the number of persons who go in for examination, or certainly more than a third, sit in Scotland, apparently, rather than in Great Britain.

9683. (*Mr. Smillie.*) That is not a proof they are less qualified. We present a larger number for examination than other parts of Great Britain, because we have mining schools in every district, and 40 or 50 young men attending the schools?—A great many go up because it is an easy examination.

(*Mr. Smillie.*) We do not think it is.

(*Chairman.*) I do not think we will stop and dispute about Scotland. We have the statistics before us.

(*Witness.*) I have given the suggestion I wish to make about a General Board, and to have the examination uniform. The certificates are not uniform now, and there is no comparison between them. As regards the managers, I should like to say a manager should give a reasonable amount of personal supervision underground, and not rely upon the under-manager and posting up of Rules. The managers now leave far too much of the underground management to the under-manager. That is the underground management. It should be the duty of the manager to become personally acquainted with all parts of the mine under his charge, and to keep himself in touch with the underground operations by frequent visits to the workings. May I add here, some time ago—in September, I think, I know it was a very nice day—I met a manager by himself in a road, and I said to him, "I have been down your pit more times this year than you have." That was in September. The Committee

Digitized by Google

asked about the inspectors going down, but when the inspectors go down more than the managers, I think it is time we looked the managers up.

9684. How about certificates for metalliferous mines? Have you considered about that?—No, I have nothing to say upon that.

9685. There is nothing you wish to say upon that point?—No.

9686. What do you say as to experience in foreign mines and Colonial certificates?—We had a very good illustration of that at the last examination a couple of months ago. There was a young man who came up and brought up some Colonial experience; but we soon found out what his Colonial experience was. It was going about making reports on mines. That is not the practical management of a colliery, and he would not get much practical experience.

9687. Supposing a man brought proof that he had been working underground or abroad in the collieries for the necessary time, and you were satisfied that that was the case, would you admit certificates from the Colonies or from abroad?—I would not admit the full time of them. It would be something like the Universities. I would take three years abroad for one in England.

9688. You do not think that experience abroad is equal to experience in the United Kingdom?—We are under such different circumstances in every shape and way that I think his three years abroad would probably not be worth more than one year here.

9689. Is there anything that you wish to say about the plans?—Yes.

9690-93. I notice this passage in your Report for last year: "There is one matter to which managers might profitably direct their attention, and that is the keeping of a plan showing the route or direction of the various air-currents in the mine, with the doors and sheets erected for giving effect to their method of ventilation. In some cases such plans are faultlessly kept, in others the absence of such a plan reveals the manager's ignorance of the ventilation of the mine when he is requested to trace it out on the working plan"?—Yes. I have not much to say upon the question of accuracy of the working plans. I once summoned a manager for having an inaccurate plan; but I had the greatest difficulty to prove anything about it, and the result was the case was dismissed against me. I know the plan was inaccurate, because it was proved so afterwards.

9694-5. That did not encourage you to bring further actions against managers?—No; but there is an absence at the collieries of a plan showing the whole of the ventilation of the mine marked out. I think it would be advisable at every colliery of any size that there should be one plan kept solely with the ventilation marked upon it. It could be marked in pencil, so that it could be rubbed out and altered as the ventilation is changed. I say that for this reason: That directly an explosion occurs with respect to ventilation, the first thing we want is a plan. If it has to be prepared, we have to wait for it; and I think it should always be at hand. When we find fault with the ventilation, sometimes we have to get the manager to mark it, or mark it for ourselves on the plan. There should always be a plan kept with the ventilation marked upon it.

9696. Do you think that it would be advisable for the Home Office to insist upon any plan which was kept at a mine office being certified, and that it should only be allowed to be passed if it were signed by some person who had some special technical knowledge?—Now, apparently, owners can produce any plan they like, and there is no finding out whether they are accurate or not, and there is no making them employ a skilled person.

(*Mr. Ratcliffe Ellis.*) The plan must be accurate, according to the Act of Parliament.

9697. (*Chairman.*) There is no means of proving whether it is accurate or not. It need not be made by a man who has any reputation to lose?—The owner and manager are responsible for that if we prove them to be inaccurate.

9698. No doubt?—But the question is to prove the inaccuracy. How are we to do that? That is the question, I take it.

9699. My suggestion rather is that you should begin at the fountain head; that you should begin by making it necessary that all plans should be signed by somebody who had passed some examination showing that he was qualified to make a plan?—That means certificated surveyors.

9700. Yes, something of that kind; that he must have a certificate of some sort?—The manager should be a mining surveyor. That is part of the curriculum of his education.

9701. Ought he to make himself responsible for the accuracy of his plans?—He is responsible for their accuracy now.

9702. The owner or somebody is responsible. You would not suggest that it should be necessary for a plan to be passed at the Home Office; that it should be signed by anyone having a certificate?—No, I would not take the responsibility away from the manager now. The question is not the signing, but to know that they are accurate, and to prove that they are accurate or inaccurate. I should like to raise also a question in regard to the plans of abandoned mines. The Act requires a plan to be sent within three months of abandonment, and the question is, when is a mine abandoned? I think that question has never been answered yet. In Section 4 (1) of the 1896 Act, after the word "abandonment" should be inserted, "or within three months of a written notice from the Inspector of Mines, given at any time after the cessation of drawing mineral." That is what I suggest should be added to the Act. The plans sometimes are lost by change of owners; the former owner keeps the original plan and only an outlined copy is left for the new owner. The original plan should never leave the mine until a copy has been deposited at the Home Office. In the case of mines of long life, the first plan is occasionally worn out, and only outlines of the first workings transferred to the new plan. In one place I had a case of this sort; a colliery went into liquidation, and the question was, who was responsible for the plan. I had great difficulty in finding out where the plan was. When at last I found out, it turned out that the manager had gone and taken all the plans away with him for his wages, and I had no power over him in any way to get the plans. I did get them, but I had no legal power. In another case I took out a summons against a man for not sending a plan of an abandoned mine in. That is reported in the case of *Stokes v. Hill* in our instructions which are before you, but I took that case because the man said it was not abandoned. It appears to me that a mine is never abandoned until the lease is up if there is any coal left. I would like to see words added to the section, that it should be sent in at any time within three months after a written request from the Inspector. What injury can occur by sending it in? It is only making a tracing of it and depositing it at the Home Office. It is only a bit of trouble, and I do not see any harm in it. Then, as regards the plans, you are probably aware that there are a large number at the Home Office, and I should like to make a suggestion of this kind: Ordnance plans should be kept at the Home Office for every seam and kept up to date, the plans now in the office being transferred to such plans. I think such plans are partly in existence at the present moment having been prepared by the Coal Commission, but I think the ordnance plans of the country should be kept at the Home Office, and the plans, as they are deposited, should be transferred to such plan as a record of the country's mineral value. That means that a qualified surveyor would have to be employed at the Home Office to do the work. The question is, if an inspector ever doubted whether a plan was accurate, could he send for that trained surveyor and have a survey made to test the accuracy of it?

(*Mr. F. L. Davis.*) You would want more than one in that case?—I do not think the inspectors would be often sending for them. The Statistical Department at the Home Office might be made more important. All mining statistics should pass through the inspectors' hands and then be forwarded to the Statistical Department for tabulation. It is important that the inspector should see them, as it tends to accuracy and keeps the inspector informed of what is being done. I do not know, during the whole of my time, that I lose a single day's work or an inspection through getting statistics up. They are always done by me at

Digitized by Google

Mr. A. H. Stokes.

12 Dec. 1906.

night. I do not leave my office till late at night for, perhaps, four nights a week.

9703. (*Chairman.*) Do you think that statistics might be more reasonably tabulated at the Home Office, and that the work might be taken off your shoulders?—Yes, but I think they should pass through the inspector's hands.

9704. In this report of yours would you like the Home Office to be responsible for the tabulation of the statistics rather than yourself, I mean in your yearly reports. Would you suggest that you should send a mass of statistics for them to tabulate themselves?—There are very few now. A great deal has been taken off our hands by the Home Office to relieve us. Take, for instance, the list of fatal accidents, which is the largest table. That can only be prepared by the inspector.

9705. You think that the present system is all right as regards the tabulation of statistics for your yearly reports?—Yes. They should certainly pass through the inspector's hands, so that he may know what is going on, and, secondly, it secures accuracy.

9706. Do you think the Home Office might still take a certain amount of work off your hands in the way of tabulating statistics?—No; I think they have taken off as much as they can to be of any value. They have done their best to ease us as far as they possibly can without detriment to the efficiency of our work.

9707. I suppose you know nothing about under-sea workings, because you are in the Midland district, and you have no workings under the sea?—No.

9708. (*Mr. Cunynghame.*) I have only a few questions to ask you, and if I do not ask you upon some important questions it is because all the matters have been fully gone into by the different inspectors. How long did it take you to qualify to get a St. John's Ambulance certificate? It is not a very formidable thing, is it?—I think it was twelve lessons, but it is so very long ago. I was in the first class that was formed in the district.

9709. At present how long would it take a man of reasonable and average ability to qualify himself?—I should think about twelve lessons.

9710. You said you would be in favour of making it compulsory, and I wanted to see how much preparation it would involve?—The young men trained now for managers at collieries will get it before they complete their service.

9711. It is not a very formidable requirement?—No.

9712. You told us in the case of boys employed in a mine that you would like them first to be employed on the surface to get them accustomed to things before they went down. There is one point that struck me in connection with that. Might it not be better in some cases for a boy to go down to work with his father? Would he not be safer with his father below than on the surface without him? Would he not receive kinder treatment and be taken more care of?—I think not. I had a case this week where a boy was injured, and he had only been in the pit nine days. He was thirteen years and nine days old, and I said to the boy: "Does your father work in the pit?" and he said: "Yes, but he works in a different part of the mine to me."

9713. That is not my point. If he were to go down under the care of his own father would he not be better treated?—No; he would only be under his father's care to the pit bottom.

9714. Do you not think it would be better to make the boy go down with his father than allow him to work on the pit surface? I am not expressing any opinion about it one way or the other?—I would leave him on the surface. He is as much protected as he would be with his father underground, and he would probably not go with his father underground.

9715. (*Mr. Enoch Edwards.*) Practical difficulties preclude that altogether?—The father would leave him at the pit bottom. There were one or two other points I did not mention which I should like to, if you would allow me.

9716. (*Chairman.*) Yes?—One is with regard to the agent, and my notes are: All persons interfering with the management of the mine or acting on behalf of the owner of the mine in supplying materials, or neglecting to supply materials for the safety of the miner or the mine, should be held personally responsible for their actions or neglect. No person should be allowed to intervene between the manager and the owner without being made subject to the same responsibilities as the manager. By Section 21 the agent may appoint the under-manager. That appears to me to be a curious thing. Here is a manager appointed who has to go to the agent to ask him to appoint his under-manager, the manager's principal official of the mine.

9717. You think the manager ought to do it?—Certainly. His chief lieutenant should be appointed by the manager—not by the agent. The manager should have undivided responsibility.

9718. (*Mr. Ratcliffe Ellis.*) Is it Section 21: "In every mine required by this Act to be under the control of a certificated manager daily personal supervision shall be exercised either by the manager or by an under-manager nominated in writing by the owner or agent of the mine"?—If the owner does not do it, it is the agent.

9719. By the manager or by an under-manager?—Will you just allow me to refer to it. It is the first part of Section 21: "In every mine required by this Act to be under the control of a certificated manager daily personal supervision shall be exercised either by the manager or by an under-manager nominated in writing by the owner or agent of the mine." Therefore it must be either the owner or the agent, and in a limited company of course it is the agent.

9720. That never occurred to me before?—That is so by Section 21. If you begin to read after the comma, "or by an under-manager nominated in writing by the owner or agent of the mine." It appears an anomaly to me that the man who has the responsibility of the mine must go to a clerk in his office to appoint his under-manager. I really myself cannot see what is the use of an agent. It appears to me that in the case of an owner taking an active part in the management of a mine he should be called upon to prove that he had given every facility, if a violation of the law occurs, and that there should be no intermediate person between the manager and the owner. We have sometimes an agent who is simply a clerk in the office. I would not object to the clause if the decision in the case of *Corfield v. Evans*, which is in the instructions you have, remained good, but the glorious uncertainties of the law upset that. *Corfield v. Evans* was in my district when I was an assistant inspector there; it was through me the action was taken, and I should just like to refer to it. Speaking of the agent, Mr. Justice Wills says: "The general agent who represents the owner, especially in the case of a limited company like this, and to whose directions everyone is bound to conform, can, if he likes, if he is not too great a man, secure that the Act of Parliament shall be complied with." Then he goes on to say: "He is liable, and I should be very sorry indeed to give any countenance to the notion that because he undertakes duties so vast as in a position so comprehensive in its scope fall within the area of his jurisdicton he is therefore to escape the law and put forward a smaller individual. I have no doubt that in such a case he is paid proportionately." Then later on Mr. Justice Wills says: "It is a thing which any man who takes the trouble of going into the mine may see for himself, and if he is too great a man to do so he cannot escape the consequences of not seeing that the Act is carried into force for no other reason except that it is too much trouble, and that his junctions are too important and numerous to leave him time to do so, and if his subordinates whom he employs do not do it, so much the worse for him." That has been upset by *Stokes v. Mitcheson.* In *Corfield v. Evans* Corfield was a certificated manager, and yet he was agent. In *Stokes v. Mitcheson* Mitcheson was also a certificated manager, but he was the agent, superior altogether, but he was the ruling spirit at the mine, and he shielded himself under the manager. When that came to be decided it upset *Corfield v. Evans.*

9721. (*Chairman.*) You say that there is no use in having an agent?—I think no one should come between the manager and the owner. That is all I have with regard to the agent. Then with regard to legal proceedings, the decision of magistrates in mining cases is frequently unsatisfactory. I have given you the decision in a case about trying to enforce the Ex-

Digitized by Google

plosives and Coal Mines Order. I would suggest that all prosecutions by the inspector should be heard before the Stipendiary Magistrate sitting nearest to the mine. Should a manager be twice convicted for offences which endanger life, then an inquiry should be held into his certificate. Many of the cases I have had before Magistrates have certainly been very unsatisfactory.

9722. You would transfer jurisdiction to the nearest stipendiary?—I think in all cases inspectors' proceedings should be taken before the nearest stipendiary magistrate. With regard to shaft accidents I have very little to say. Considering that nearly 700,000 persons are lowered and raised in shafts every day, the small number of accidents is a remarkable testimonial to the care, skill, and ability of the great body of enginemen. The accidents and deaths are so few that I have no suggestions to make. With regard to overwinding, I see no reason for suggesting any alteration to the regulations now in force. With regard to ropes and chains breaking, I would suggest that it be obligatory to recap every winding rope at intervals not exceeding four months. Perhaps you will allow me to explain why. The rope which goes over the pulley-wheel and comes down into the shaft, in picking up the load every time is compressed on the top of the wheel by a sudden blow, and it is therefore important that the position of the blow should be moved by recapping and cutting shorter. I think it should be a special rule that the rope is to be recapped every four months so as to take off the point of pick up on the pulley-wheel. There is another reason: In bad weather, when the rope is on the top of the pulley-wheel, the strands of the rope are open, like my fingers, and the weather is getting into the strands, and so encourages internal corrosion. By taking 3 or 4 ft. of the cap you alter the tread and take it to another place, and therefore it is important that the rope should be recapped at intervals. With regard to ascending or descending, I would suggest that all cages be fenced at either end when men are riding. That, in my district, is, I think, nearly universal, and it has been the means of regulating the men going in and coming out, and a means of safety. With regard to accidents on the surface, accidents on the surface are of various characters. Screen posts should not be within 18 inches of the side of a wagon when passing under the screens. I have many accidents from the posts supporting the screens. Where the railway wagons go too near them, and when a man has hold of the brake alongside the wagon, he is apt to get pinched against the screen posts. There is no reason why the distance between the lines should not be greater, except space, and if the collieries are tied up for ground room there is no reason why screen posts cannot be taken out and iron girders put up which will carry the whole of the screens. I have had a number of accidents of men crushed between railway wagons and screen posts. Pushing at the buffers of railway wagons should be prohibited, and the lowering of wagons under the screen should be notified by a gong, or some other signal. The screening we do now is accompanied by a great deal of noise. The modern screens make a great deal of noise, and shouting is no good whatever to warn the men. On the colliery sidings nothing should be allowed within 4 ft. of the rails, so that men may walk at the side with safety to attend to the brakes. I think that is all I have to refer to with regard to surface accidents.

9723. (*Sir Lindsay Wood.*) I think you said in your examination-in-chief that it ought to be made compulsory for the workmen to examine the mines once a year at least?—I made a suggestion of that sort, if it can be carried out. There is another way of carrying it out, to appoint additional inspectors to do it.

9724. I thought you rather laid some stress on the advisability of the workmen themselves appointing certain of their body to go round the mine and examine it?—I did, but there is another alternative, and that is to have two workmen to make the inspections all over instead of having them at each mine.

9725. Instead of making it compulsory for the workmen themselves to examine, you would appoint a lower class of inspectors to do it?—I have not considered that. My suggestion was that you should take two men out of the mine. It would come to the same thing if you took two men generally for the district. I am not wedded to that.

9726. Anyhow, they would have to have some qualification?—That would depend. If you take them away from the mine and let them go all over the district you must make them Inspectors of Mines, give them the status of Inspectors of Mines, and then comes the question, if you do that can a workman read a plan, can a workman read the ventilation, can a workman measure ventilation, can he understand all those things that are wanted, or does he simply go for the practical working?

9727. I thought your idea was that every mine should be inspected by the men at the mine, because they knew more particularly the details of the mine than that there should be an outsider?—That is what I suggested.

9728. That is the suggestion, and that they should be paid by the Government?—Yes.

9729. How long would it take you to go round a mine? I suppose you would have more than one man to go?—Always two.

9730. How long would it take at a very large colliery to go round that mine?—I am thinking of the largest mine in my district, which is 2½ miles out, and it is a very large place, getting 2,000 to 2,500 tons or more per day. I certainly could do that myself in a week and see every working place.

9731. Taking the area of your district at the rate of 10s. a day for these two men for a week to go round one colliery, would it only cost £1,000, or is that to cover the whole?—You must remember there are some I could get round in a day, and some would be exempted.

9732. That is taken on the average?—I have taken on the average.

9733. That is on your calculation, to take a week for a large mine?—I have taken a week to do the largest mine—six days.

9734. And you think that that should be paid for by the Government?—That was my suggestion.

9735. You say probably they would then become practical inspectors?—No, I think I have not made myself clear. If you selected and appointed two working men inspectors to go all over the district then they would have to become Inspectors of Mines.

9736. Even at the time they were inspecting they would be inspectors employed by the Government and paid by the Government?—I would not give them that standing. I would leave it in the way it is now, giving the same privilege there is now, but make it compulsory, and the payment should be made by the Government.

9737. In many districts the men do appoint their own inspectors now and pay them themselves?—I would rather confine myself to my own district.

9738. You are not aware of it?—I am aware of it, but it is only from what has been told to me.

9739. You said you thought that the inspection before shifts by the owners or managers ought to be altered, and that there should be one inspection before each shift and two during each shift?—I think I said that the inspection before shift should remain as it is, but that there should be two inspections during the shifts instead of one.

3940. That would mean that there should be three inspections?—There is one before they go to work and there are two during the shift, but supposing the next shift follows on I say that should be considered a second shift, and there should be two more during that shift. It should not be considered one shift.

9741. Then there would be three for each shift?—No.

9742. There is one before they go to work, and there are two during the work now. When the next shift comes in do you mean there should be one before it commences?—Not in the case of a continuous shift, but two during the shift.

9743. How long are the men in the face during each shift?—In a very large pit, perhaps eight hours.

9744. In the working face?—Yes.

9745. How long do they draw coal?—They get from start to finish in the large pits towards nine hours, I think.

9746. Is there only one shift of men?—One shift of men.

9747. If you had two shifts there would be practi-

Digitized by Google

Mr. A. H. Stokes.

12 Dec. 1906.

cally inspection every third hour?—I think that would be about it.

9748. Do you think that is necessary?—I think we should have more official inspection. I ought to mention that it is because there is such an awful loss of life from falls of roof. Our loss of life from falls of roof is so very great that we must do something to stop it.

9749. Are not the men in your district bound to set timber themselves?—Yes, that is within their contract for getting of the coal.

9750. Do you mean the men themselves are not competent to set the timber?—Certainly, they are, and very good men indeed in every way, but still—take, for instance, barring, I would make barring compulsory. Now it is left to the men's judgment in many cases.

9751. That would not affect the question whether the men were inspected three or four times?—If it was compulsory the official would see it was done.

9752. The man and not the official would set it. The men would not be carrying out the rules properly?—They are getting coal, and what I want is this: As a loader loads up the coal I want them to follow up with the timber immediately, to set it as there is room for it to be done. Then the official sees it is done, when he inspects the place.

9753. My point was that every inspection, if frequent, was rather taking away from the responsibility of the men to set their own timber. If a man has to go every two or three hours and see a man is doing his duty, it looks as if the man was not efficient to do it?—I do not think that is so. In an ordinary business you get supervision, but you do not say your employees are not qualified because you give a good deal of supervision to them. It is no reflection upon them by having the supervision.

9754. You do not have it every three hours?—I do not see why.

9755. Your system is rather different from what we have in the North of England?—I think the North of England is the only place where they do it by deputy. In the North of England you have a good deal of board and pillar, but in my district it is nearly all longwall.

9757. We have nearly all longwall now?—I am very pleased to hear it.

9758. You gave some evidence which is rather important about having doors in mines to prevent the spread of an explosion?—I have not seen these doors and I am rather diffident about giving any evidence on the matter. They are only just complete; my assistant was down last week and called my attention to it, and I shall take the first opportunity of seeing it.

9759. I want to get on the Notes whether you recommend them or whether you say that you are not sufficiently acquainted with them to give an opinion?—I say I am not sufficiently acquainted with them, but I wish to correct one thing. I believe the object is to stop the explosion from going from one part of a mine into another.

9760. How is that accomplished?—I say I have not got sufficient details, and I would rather not give any opinion upon it, except that I thought it was my duty to bring it to the notice of the Commission, because you are considering watering, and the question is whether something of this sort cannot be done.

9761. You have seen the effect of many explosions, no doubt?—Unfortunately I have.

9762. You have seen the force of them?—I have.

9763. Do you think an iron door would stop any of the explosions you have seen?—The plan I have of these doors would certainly have stopped it.

9764. They would have stopped it?—The plan I have seen.

9765. They must be very strong?—They are very strong, indeed.

9766. How do you manage to get them shut?—They are small and strong, and there is a large amount of solid brickwork for a long length. I would rather not speak as to the details because I have not seen them.

9767. You say the air ought to be tested so as to show whether ventilation was adequate or not. You think that the air should be tested in the same way as you would test food?—That is as regards the quality. We are bound by law to test the quantity and record it, but I say if you test the quantity why should you not test the quality.

9768. The quality is not permanent?—No, it will vary, but I think it should be compulsory to test both, and I told you how I would test it, as you will remember.

9769. Do you think there is any value in that. You might possibly take the air untested?—It was only in case of dispute that I would take the sample bottle.

9770. What was your test of the quality?—Will you allow me to refer to my note again. This is what I said: The quantity of air is to be measured once a month. If the quantity, why not the quality, and both entered in a book to be kept for the purpose. The quality could be tested by the small flame of an ordinary safety lamp burning either colza oil, or a mixture of two-thirds colza and one-third paraffin oil. A blue cap of any size in a working place to be the test of inadequate ventilation, and then I said probably 2 per cent. A similar test for return airways and a standard fixed which I said would probably be 3 or 4 per cent. And then to decide this, if disputed at the time of inspection, two bottles may be taken and the contents analysed. The analysis to be final. If you invert two bottles of water in a mine and draw the cork you have two bottles of the ventilation. I would treat the ventilation exactly as food is treated.

9771. I rather misunderstood you. I understand now that the test of the quality of the air would be whether you get a blue cap on the flame of your lamp or not?—Yes.

9772. Not the chemical constituency of the air?—It would be the test of the blue cap on the safety lamp. We have the hydrogen and the alcohol lamps which give very fine tests, but I discard them and take a practical test.

9773. Is it not carried out now in this way, that the air is always tested to see whether there is a blue cap on the lamp or not?—Yes, but in a very curious way at times, I am afraid. If you were burning spirit with a lamp you might get a blue cap with spirit alone. It should be a standard of oil to test it with, and a standard lamp, that is, the lamp of the mine, and then, if there is any dispute between the manager or the inspector, you should take two bottles and say, "I will fill them and have the air analysed."

9774. Very likely the air would vary in its quality before you got it tested?—I would be ready for the manager. I would take two bottles of water in my pocket in a case when I had any suspicion.

9775. But the question is whether the air is not tested now or ought to be tested every morning in the way you state before they go in the air-ways to see whether there is any gas in them?—Once a month, it says, for the quantity.

9776. They would have to be examined before the men go in, before the persons walking in the mines pass along the air-ways?—I do not suggest they should be taken every day.

9777. The test is to be taken every day?—The ordinary test by the officials—yes; but if the inspector goes down and makes this test, and finds the standard I have put down infringed, or something which the Commissioners may think sufficient, then that should be the standard of inadequate ventilation. At the present time what is inadequate ventilation?

9778-9. I always understood, and evidence has been given before us, that the men are always withdrawn if there is a blue cap seen on a lamp?—That is a question of opinion. We have heard that half an inch in South Wales is not considered dangerous in a mine. There is a difference of opinion as to what is inadequate ventilation. I should say that the gentleman who gave that opinion ought to work there.

9780. (*Sir Lindsay Wood.*) You said there ought to be one code of Special Rules for the whole kingdom—one general set and an additional set of Special Rules for each district?—Yes.

9781. Is that not the system we have now?— We have now General Rules in the Act of Parliament?—Yes, the first code can be made an Act of Parliament; but when will it come into force? It is a long process to get an Act of Parliament through. I would prefer to have a model code of Special Rules applicable to the whole Kingdom drawn up in the way I have suggested.

Digitized by Google

9782. And not put into an Act of Parliament?—No.

9783. You would have Special Rules, again, for each district?—Those would be very few—just to cover the peculiarities of that district. They would be very few indeed. It appears to be thought that mining is so different in one place from another; but I have been down South Wales mines, and if I was not told where I was I should have said that I was in my own district. I do not see that there is that great peculiarity between them. Mining in South Wales is very much the same as mining in Nottinghamshire and Derbyshire. The difference is in mining terms.

9784. There is a good deal of difference between mining in South Wales and the North of England and Scotland?—There are many things which are general all over, or workmen would not so readily pass from one district to another district.

9785. I see in this table which you have put in of the number of persons who have passed the examination for certificates in Scotland that you gave the percentage of passes as ·44 in Scotland for first-class certificates as against ·38 for all the rest of the districts, but in the second-class certificates Scotland passed only 32 per cent., as against 50 per cent. in the other parts of the district. Can you give any reason why that should be so?—I simply gave the figures to show what a large percentage were being passed in Scotland.

9786. Of first-class certificates?—Both—to support the idea that there should be a uniform examination all over the kingdom.

9787. (*Mr. Smillie.*) There is not really a large percentage?—For five years; 32 per cent. of the total were passed by Scotland in the second class. That is a large percentage for Scotland, and 44 per cent. of the total first class.

9788. (*Sir Lindsay Wood.*) That 32 per cent. is of its own students? The whole country passed 50 per cent.?—Passed 32 per cent. of the whole country.

9789. Fifty per cent. of the men sent?—When you come to look at the percentage of Scotland compared with England and Wales and Ireland, there is not a great difference. There is 32 per cent. of the whole of the passes which is Scotland. Is Scotland 32 per cent. of our output?

9790. (*Mr. Smillie.*) That percentage deals with the total number of passes, but it is not the percentage of those presented in Scotland?—I think the percentage of second class passed last year in Scotland is ·86, or 133 presented and 114 passed, whereas in the other part of the kingdom 609 presented and 365 passed, or 60 per cent.

9791. Is there anything in that to prove that the examination is less stiff in Scotland than it is here?—I wished to show that there should be a uniformity of examination all through the kingdom. That is my point.

9792. That we are all agreed upon?—It is to show that there should be a uniformity, and, whether Scotland's standard is right or wrong, I do not know. Probably Scotland is right and we are wrong; but, if so, it should be uniform.

9793-4. (*Mr. Enoch Edwards.*) I understood you to say that you and your assistants were able to make one inspection yearly?—May I give you the exact figures. Every mine in the district last year had one inspection, one-third of the mines have had two underground visits, and a few three inspections.

9795. You were asked whether in your opinion there are sufficient inspectors. What is your opinion?—There are sufficient as regards coal mines, but when you take quarries, I think I should like more assistance. In the same way, of course, the suggestion I made about the working men would meet it.

9796. We have hardly got to the question of working men. You are aware, I suppose, that the United Kingdom is mapped out in 12 districts?—Yes.

9797. Your district is the 8th district?—Yes.

9798. And you are aware that there is a Chief Inspector for each district?—Yes.

9799. With two or more assistants?—Yes.

9800. Have you any complaint that the assistant inspectors are not being promoted so rapidly as they think they ought to be?—I really do not know.

9801. We are told that there are 26 assistant inspectors?—Yes, I think that is correct.

9802. It is to be expected that the promotion of 26 men will be less rapid than the promotion was 20 years ago, when you had half that number?—No, and that reply seems very curious indeed; but it is in this way. When I was an assistant inspector, I thought my chance of promotion was very slight indeed, for this reason: I saw inspectors on the staff who were between 70 and 80 years of age, if I remember rightly, but now the Order in Council is that we must retire at 65.

9803. They must retire at 65?—Yes. Now the inspectors all retire compulsorily at 65, and I may say there is one who retired last year at only just 60.

9804. The inspectors up to now have been a healthy, long-lived race of men?—No, unfortunately no, poor Scott and Wardell are dead, and Foster dead, and within the last few years I have had both my assistants seriously laid up by accidents in mines.

9805. We have not the table before us to prove the longevity of these people?—It is far from encouraging.

9806. We start, then, with this, that you have 12 districts. I want to put before you that there are 26 inspectors who cannot be promoted as rapidly as they would be if you had more districts?—With me it is not the question of more districts, but it is the question of the effectiveness of the inspection.

9807. With some of us it is the question of wanting to get your opinion on certain phases of this question which we have in our minds. I want to try to get out what appeared for a long time from the examinations that all inspectors were against the increase of the inspectorate?—I did not know that; I think not.

9808. In the early days of this inquiry—I think I am trying to put correctly what was stated—the inspectors told us there were plenty of inspectors?

(*Mr. Cunynghame.*) Some said there were, and some said there were not.

9809. (*Mr. Enoch Edwards.*) I want to see whether Mr. Stokes belongs to the latter class?—I should be glad of some more help.

9810. I want to put it to you again that 26 assistant inspectors will be less likely to be promoted—that the process will be slower in 12 districts than it would be in 24 districts?—Under the present arrangements—yes; but the question with me is not whether the Government wish to throw money away by creating posts, but the effectiveness of the inspection.

9811. We are not dealing with the Government. This is a Commission appointed to find out how best you can reduce the number of accidents in mines, and I want to put it to you that it is not a question of the Government for the moment?—I thought you were putting a question on promotion, and not upon accidents.

9812. I put it to you that it is a question of inspection, and I want if I can to get you to help me to prove that we are wasting a lot of time by travelling over large areas, which time might be employed by inspection, and if you will permit me to get that I shall be glad?—Will you kindly look at the plan of my district, if you have it there. You will see on paper that it looks a very large district. It is fourteen counties. That looks very large, but when you come to coal mines it is only four, and when you consider coal mines, and remember that I live at Derby, and I have one assistant at Derby and I have one at Nottingham, you will see we scarcely spend a night away from home. We are within easy reach of every coal mine.

9813. Do you want to suggest to this Commission that so far as inspectors, chiefs, and assistants are concerned, that the whole thing is perfect?—I have not said so. I think the districts could not be better arranged than what they are, and, speaking of my own district, I seldom, I tell you, spend a night away from home unless it is an accident, and I get backwards and forwards and do my day's work down the pit, and get home at night again; but as regards the number of inspectors, I have suggested to you we should have some working men inspections.

9814. We have not got to that yet?—I am asking you to give me more help.

9815. I am trying to suggest to you, or rather, I have tried to suggest to you, with the enormous de-

Digitized by Google

Mr. A. H. Stole. 12 Dec. 1906.

velopment in the coal trade during these last few years, and we admit that, there will be much greater risk of danger than there has been in mining during the last thirty years?—If you look at the statistics you will find, I think, that there has been almost a continuous reduction in loss of life during recent years.

9816. You have the reduction brought about in consequence of inspection, and a desire on the part of everybody that accidents should be reduced. What I mean is this, with the general conditions of mining, the greater depth, and so on, mining is not as safe as it was thirty years ago?—Yes, it is far safer. I can remember forty years ago, when I went down pits far less safe than now.

9817. Do you suggest they are made safer by the inspection?—I am not going to take credit to inspection for all that. It is the general intelligence of the workmen and managers and officials.

9818. I think I said as much. Do I understand you to say that the natural conditions are more favourable in mining itself than they were forty years ago?—Certainly; I think now we have got increased skill.

9819-20. I do not want to misunderstand you, nor do I want you to misunderstand me. What I am dealing with are the natural conditions of a mine to-day as against the condition of a mine forty years ago. Do I understand you to suggest that mines are safer to work to-day than they were forty years ago?—Yes, certainly, far safer.

9821. For the moment I am not sure whether that statement would be generally accepted?—Then I say that engineering skill, to begin with, and science, and experience applied, the intelligence of the workmen, and all that——

9822. I do not know whether we are at cross purposes over this. This is what I am putting to you. I am prepared to admit we understand how to grapple with these difficulties better, but that is not the question I am arguing. Do you say that the natural conditions of a mine with coal at a depth of 800 or 900 yards from the surface render it more dangerous to work than it did forty years ago?—No, I do not think so.

9823. You do not think it does?—You must remember this: when we reach the lower depths we get no water, to begin with; we are free from water. We have a heavy weight on, but we have so grasped or controlled nature that we are able to deal with it. May I just refer to one point you put to me about the inspector's district? You must remember this, that although the output since I have been an inspector in this district has gone up from 11,000,000 to nearly 31,000,000 tons last year, I have fewer pits.

9824-6. I understand, when you talk about inspecting the colliery, you do not mean inspecting all the pit?—When I made that remark I meant every seam of that colliery had one visit or more. What I wish to put before you is this, although the output has largely increased in quantity, still there is nothing like the number of pits to what there used to be.

9827. Still you have bigger underground areas to cover?—Yes.

9828. You would not, forty years ago, have a pit two and a half miles, as you suggest you have?—No.

9829. That condition of things did not obtain then?—No, still we have much fewer pits.

9830. You are not inclined to think that inspection might be worked much more economically, and with less waste of time by dividing the districts?—I am certain not, as far as my district is concerned. I should like some help, but I am certain in area it could not be better. I have four counties in which there are coal mines, and you will see Derby and Nottingham are very central.

9831. As far as you are concerned, in No. 8 District, do you think you have all that you desire, all you need rather?—No, I say I would like more assistance.

9832. Do you mean assistant inspectors or workmen inspectors?—That leads me back again to what I have suggested. If you adopt my suggestion that would give more assistance, or you may give me more assistant inspectors of an inferior class if you like.

9833. In your judgment, do you think on the whole that it may be a good thing to have workmen inspectors?—I think so. I do not see why we should not have them.

9834. Do you mean men who, while they do not understand the technique of mining, understand the practical difficulties they may have to face, and who would be able to get about a pit and report?—My suggestion is that workmen's inspection should be made compulsory.

9835. I understood you to say if workmen were so appointed, and paid at the salary you suggested, which was not a considerable one——?—Do not tie me to that.

9836. You suggest after they have made their report that they should send it to you, and not to the colliery office?—Yes, certainly.

9837. What is the objection of sending it to the colliery office?—I should not like to see the workmen prejudiced in any way in the eyes of the manager or officials, and I think a workman sending it to the inspector would be free to say what he liked, and tell me more than otherwise he would do.

9838. Do not you think that, and not the question of expense, has something to do with the men not taking it up now?—It may be.

9839-40. An inspection by workmen as to the safety of the pit is not necessarily antagonistic to the owner of the pit?—I do not say that, but if a workman inspector made a number of serious complaints about things, let it go to the inspector of the district, who ought to be a skilled man and able to inquire into it, and see whether it is right; do not let it go to the manager or anybody else to prejudice that workman. I have plenty of complaints from workmen, and I may say this, whenever I have received a workmen's complaint, if possible, I have investigated it myself personally. I do not care whether it is signed or not.

9841. Now, there is a question or two I want to ask you about lamps. First of all, can you give me any idea as to the amount of coal raised in your area by lamps and by naked lights?—I would rather give it to you, if I may, by the percentage of persons working with lamps. Perhaps that would suit you?

9842. Yes?—I have not got the tons. 82 per cent. of the persons working underground use safety lamps, but in 1890 there were only 62 per cent. This increased use of lamps shows why I am so free from explosions.

9843-4. I understood you to say that in your district the men put forward a claim on the 1d. per per ton basis if lamps are put in the pit?—Yes, plus 40 per cent. Sometimes it is 1½d. a ton without the 40 per cent.

9845. Do you think it an unreasonable thing for a man to ask for a 1d. per ton?—I like a man to get anything he can that is reasonable. I do not think there is anything unreasonable in a man trying to get what he can for his labour.

9846. Why, when you gave your evidence in chief you were rather seeking to prove that after all it was not a loss to the workmen, and that you saw no reason why they should not use lamps; that there were less accidents, that they got more coal, and the object of it was for some purpose or other, and that because they get more coal, for that reason they are not justified in asking a 1d. a ton more with lamps?—I did not mean to put it in that way.

9847. You put it that way?—I wanted to put it in this way. The use of lamps does not appear to have been any detriment to them in any way. They get the lamps free from the owner, both the maintenance and everything is free from the owners. They gain a ½d. per ton by the non-use of naked lights, which they were paying——

9848. It is the old question of money?—It is not a matter of money at all.

9849. I have not heard the question of naked lights raised for thirty years. I put it to you that 82 per cent., where they use safety lamps, are in receipt of 1d. per ton?—No, very few of them, for this reason: a large number of them were working with lamps before the price list was made, and the thing was never taken into account.

9850. It would be fair to assume that the 1d. per ton was in the list?—Yes, it would.

9851. The employers who employ 82 per cent. of the men are already paid this amount for the use of the lamps?—I presume it was in as I say the contract amount for getting the coal.

Digitized by Google

—9852. Where is the unfairness to the rest of the community in asking them to do the same thing? Where is the injustice to the colliery owner?—I am objecting to the method, the application of it. It is now if you go on with safety lamps you must pay 1½d. per ton, but whether you go on or not, it should not be a premium upon safety.

9853-4. You raise a question of how difficult it is to fix a rate at a colliery that is not to be paid. You fix a rate, assume it is 1s. 5d. per ton, and that they are using naked lights, and that it should be 1s. 6d. per ton to meet the difficulty some day when they have lamps?—I would put a price on inclusive for the use of lamps. Let it be stated in the price list if you use lamps or if you use naked lights that is our price, but do not let it be a premium upon safety, or something to block the lamps coming in. I have made another suggestion: put all the mines on with safety lamps, and there is an end of it altogether.

9855. In your experience, has this question of 1d. per ton, in the case of a fiery mine, a mine that gives off gas, where lamps should be put in, ever prevented lamps being put in?—No, but it has done one of two things, it has helped to take them out as quickly as possible unless there has been an explosion and somebody hurt. It has helped that materially.

9856. To take lamps out after an explosion?—Supposing there was an explosion, and I had insisted upon lamps being used, and the manager said you are right to put them in. He does not hesitate to get them out as soon as he can because there is the 1½d. per ton, and he gets it off.

9857. Do you suggest that it still comes within the category of being a dangerous fiery mine, subject to explosion?—You cannot call a mine a fiery mine that has had an explosion once in eight years, and never had gas reported as found in the mine during that period.

9858. It was fiery at that time?—It was fiery at that place.

9859. Like many of the inspectors, you properly called attention to the falls of roof and sides, which is a very important matter indeed. To meet this, some time ago certain timbering rules were suggested—a system of timbering. What is your opinion about systematic timbering?—Systematic timbering has been in use in my district for years. I called attention to the rule. Special Rule No. 75.

9860. At some places?—All over the district it has been systematic, but I say that the timbering rules have not been interpreted in the spirit in which I think they were framed. The rule says the managers shall frame a notice—that is all the rule says—specifying the distances. There is nothing at all definite. If you look at the notice I produced you will see it is a notice which is within the spirit of the rule. There are references to props, lids, bars, and sprags. There all necessary is mentioned on timbering, but, on the other hand, in another case I find a notice which the manager had put up was in two lines, viz.:—"That in accordance with the timbering rules props should be set 6 feet apart." What good is it a manager putting that up in my district when the rule already says what it shall be. He says I have put the notice up. When you set a prop, if you put a piece of chip on the top for a lid, it is of very little value to support a roof, but if you put a good lid it is of value. The good timbering notice specifies that a proper lid should be used. It says nothing about bars along the road in the timbering notice, it only says the distance the timbering shall be apart.

9861. Is that one of the things which you think in a general code of rules might apply to other timbering notices in mines?—Yes, you have an approved notice handed in.

9862. For a particular pit?—I would make it general all over the district that they should specify the maximum distances for all timber, and that a good lid should be used on the top of every prop.

9863. Are they uniformly graded mines in your district?—Yes, with few exceptions.

9864. Have you some sharp mines?—I have one I cannot walk down on the full dip of the seam.

9865. Is it possible to apply the same rules on timbering to them all?—The same general rules, but not the same distances apart. Those will vary.

9866. I understood in dealing with the enginemen that you said, which I think everybody admits, that they are a fine class of men?—Yes, they are a splendid class of men.

9867. You are quite aware that among the enginemen there is a strong desire for a kind of certificate of competency?—Yes; but if you do not take care, we shall run these certificates too much, and everybody will be certificated about the place. Why do they want it when they are doing such splendid work as they are?

9868. The same might have been said about a lot of other people who are doing splendid work?—I must give them credit for what they do, but I do not think that they would have been any better for a certificate.

9869. What is the objection to it?—To what?

9870. To a man having a certificate of competency if he is a competent man?—Give it to him if you like.

9871. (*Mr. Ratcliffe Ellis.*) You give your opinion rather hastily. You say you have no objection to certificates?—No.

9872. You know what it means—that a man is not allowed to wind without a certificate?—I know. That is all very well to say so, but here the Act says that the manager is responsible for the appointment of a competent person, and he will see to that. There is another thing, which speaks highly for the enginemen all over the district. Look at what they are doing every day; a slight slip in some of our big engines with enormous drums fetches them into the pulley wheel, and how seldom we hear of it. It is splendid work they are doing.

9873. With reference to Rule 38, in your statement you said you should exempt some mines from that rule. That is the examination by workmen?—Yes.

9874. Why?—I have some mines with only two men in. I should have the two men inspect the whole of the mine, and they would go round it in half an hour. I would exempt those.

9875. What is exactly the nature of the exemption?—Where there was no certificated manager I would exempt it.

9876-7. Where there were not 30 men employed?—Yes.

9878. The Act of Parliament now provides that the men shall, if they think fit, examine not less than once a month?—Yes.

9879. You would not deprive a mine with 30 men in it of that right?—Not if they wanted it; but I think it is immaterial. If there is a mine with under 30 men in, the men have always their remedy by writing the inspector a note.

9880. It is not a question of writing to the inspector. There is the rule in the Act of Parliament which gives to the men in any mine the right to inspection. You would not deprive anybody of it, however few men there were in the mine?—No.

9881. You propose that somebody should be compelled to examine these at least once a year?—How do you propose to carry that out?—I thought I made it clear.

9882. I want to see how you are going to compel anybody?—I am speaking from memory, but will you allow me to refer to my note?

9883. Certainly. What I suggested was that the men should select two of their number selected by the workmen of the mine, and that the men could be approved by the Inspector of Mines; and then, supposing that it were compulsory——

9884. It is to be compulsory, I understand?—I made the qualification that I would prefer it compulsory. The selection of the workmen to be similar to the selection of a checkweigher. If not selected in a month after notice served by the inspector upon the checkweigher, then the checkweigher himself shall nominate two workmen, and they shall within three months after being approved by the inspector make the inspection. If the checkweigher and the men do not, then the inspector is to call upon two.

9885. Your proposal is, first of all, the men should

Digitized by Google

Mr. A. H. Stokes. 12 Dec. 1906.

be obliged to appoint two of their number once a year, and that if the men did not do it then, the checkweigher should do it, and then if the checkweigher did not do it, you should do it?—Yes, I should be empowered to do it.

9886. What is the object of this inspection? Is it to relieve you of some part of your duties or to satisfy the men in the mine as regards the safety of the mine? —More to satisfy the men in the mine.

9887. Not to relieve you of your duties?—No.

9888. Why compel them to satisfy themselves of that?—In 1872 and afterwards the workmen made a great point of this inspection, and they do now, I believe. They wished some of their own class to inspect the practical working of the mine.

9889. I do not see why that is the reason why they should be compelled to do it?—I think it would help the inspector in his work a great deal.

9890. That is another point. I did not understand you to say that it was to relieve you of your duties, but to satisfy the men in the mines as regards the safety of the mine?—Not to relieve me of my duties, but it is a help, for these men go round and report what they find to the inspector.

9891. Do you think your suggestion is practical—that they should be compelled to appoint two of their number to examine this mine at least once a year, whether they liked it or not?—Yes.

9892. Do you suggest that the Government should pay the costs of that inspection?—Yes.

9893. For the purpose of satisfying the men as regards the safety of the mine?—Yes, and for the help to the inspectors as well.

9894-5. With reference to the report that has to be sent under Rule 38, I suppose the object of this inspection is that if there is anything wrong it should be put right as soon as possible?—Yes.

9896. Why should not the owner have an opportunity of knowing what is wrong, so that he might put it right as soon as possible?—He will quickly know what is wrong as soon as it gets into the inspector's hands.

9897. Your scheme is that the report is not to be sent to the owner, but sent behind his back to the inspector? If the report is to be of any use, and there is anything wrong, is it not desirable that the owner should know as soon as possible in order to put it right?—Yes.

9898-01. Do you think it is a thing which would conduce really to safety that the men should be encouraged in this inspection instead of communicating the result to the owner, to send it to the inspector without communicating with the owner? Is not the thing communicating with the owner?—Yes. At the present moment my assistant inspector goes down a pit to-day, and to-morrow morning I will get his report; he does not send his report to the owner or manager.

9902. Do you suggest that there is any analogy whatever between your assistant inspector and two of the workmen making an inspection?—Certainly. You put it to me if the men find anything wrong should they not immediately convey it to the owner in writing. No, I say my suggestion is carried out now by the assistant inspectors.

9903. Do you say because your assistant inspector does not communicate with the owner, but with you, therefore the two workmen who are going round the pit to see if there is anything wrong, should not communicate with the owner, but with you?—Certainly.

9904-5. You say you have been a manager yourself? —Yes.

9906. Would you like that, as a manager, two of your men going round the pit seeing what is wrong, and communicating behind your back with the inspector? —Yes, I would not object in the slightest to it, because, as I say, it is done now. The assistant inspector does the very thing I am suggesting the workmen should do.

9907. Do you think that there is any analogy between your assistant inspector and two of the workmen?—I consider it is the same thing. They do it with the same object.

9908. I do not know whether I understood you aright, but you said you would favour the appointment of working men inspectors by the Government? —In the system you have just named.

9909. I mean making Government inspectors from a particular class of working men?—That was only just a suggestion I made as an alternative.

9910. The object of an inspector, as I understand, is that he should understand the principles of ventilation and should be highly trained, not merely to look into the various corners of a mine, but to understand the plans and be a highly trained man?—That is why I prefer the first suggestion I made.

9911. Am I not saying rightly that an inspector should be a highly trained man?—He should be. An inspector of mines, as an inspector of mines, should not hold a less qualification than the manager of the mine he goes to inspect.

9912. Would you give any support to the appointment of any person, whether working man or from any other class, who was merely competent to go and look about a mine and was unskilled as to the remedies that should be taken to put any defects right?—I do not suppose he would suggest remedies, would he?

9913. Do you approve of a person being appointed an inspector, never mind his class, who is not sufficiently highly trained, and who, if he saw anything wrong, would not know how to put it right?—I do not see any objection to that, because he is not the physician. He may diagnose something that is bad, but the physician comes in to say what shall be done.

9914. Do you say you think it would be conducive to safety if there should be another class of inspector, not a highly trained man, but merely a workman, who could look about a mine and find out any fault? Do you think it would be conducive to safety amongst managers and owners?—I prefer the other system.

9915. Do you think it would be conducive to safety? —I do not know, I am sure. You are putting a question to me which I have not considered. If you give him the appointment of assistant inspector of mines to go all over the district, he should be competent to read a plan, he should be competent to measure ventilation, and he should be competent to deal with a number of matters that come under an inspector's notice, and report on them.

9916. What is the objection to appointing a man as an inspector who is not so qualified?—The objection is that he probably would not see these things, or many of these things where the defects are. I put it that the workmen should have the privilege they have now exactly. It is the method of selection and payment I suggest.

9917. We do not differ about the workmen, but I want to get your view about appointing, as a Government inspector, a man not sufficiently trained in the way you suggest as an inspector ought to be. You would not approve of that?—If I were a colliery manager I should not approve of them.

9918-19. As an Inspector of Mines, would you approve of it?—I do not like the idea, but I should have to approve of it, if the Home Office carried it out.

9920. I am asking whether it would be a desirable thing for the Home Office to do?—That is not a matter I can speak about.

9921. Surely you can give an opinion about it?— I should say not. If he were appointed inspector of mines with all the powers of an inspector of mines, I say he ought to be so far qualified to understand these things or do not appoint him, because he would give me a great deal of trouble to keep him and put him right. My suggestion is that you should merely have what you have now, only make it compulsory.

9922. Your suggestion, now, I take it, is that only Rule 36 should be extended in this way; instead of being optional with the men once a year it should be compulsory?—That is it.

9923. If the men would not do it, then you say you should have the right to nominate two?—Yes, to call upon two.

9924. Do you think that an inspector of mines should have to depend for doing his work in the district, or rather for inspection, upon the appointment of two working men?—I do not quite understand you.

9925. You are there as the inspector of mines re-

Digitized by Google

sponsible in the district for carrying out the Coal Mines Act. Do you think it a desirable thing for the inspector to have to appoint two workmen to discharge part of his duties?—He only appoints in the case of failure of everything else. That is the last remedy.

9926-8. Supposing they will not do it, then why should the inspector do it if the working men will not?—In case of failure, that is the remedy.

9929. Suppose they will not do it, I want to know why should the inspector be called upon to do that? You are to inspect by yourself and your assistants. Why should you be required to call in the assistance of the men?—Because the Statute would say it should be done.

9930. I want to know why the new Statute should provide, if the men will not take the trouble to make the inspection themselves, that His Majesty's Inspectors should compel them to do it?—Because they have failed to do it when they might take advantage of it, and therefore I would make it compulsory.

9931. I will try and put it once more. Do you suggest the law should be altered, when you are there as His Majesty's Inspector of Mines, and you have two assistant inspectors to assist you in the inspection of the district? If the men will not take the trouble to make an inspection for themselves why should His Majesty's Inspector of Mines make them do it and appoint two of their number to do it if they will not do it for themselves? Why should you have a law of that sort? It is not the law now?—I think simply to help the inspector in ascertaining what they have to say about the mine.

9932. Do you think it necessary for an inspector, in order to discharge his duties, to have the benefit of an inspection every year by two of the workmen of every mine?—Not for the purpose of effectively discharging their duty, but to help them in their duties.

9933. If it is not for the purpose of effectively discharging their duties, what is it for?—To help them in the discharge of their duties.

9934. If they want help they cannot discharge their duties without that?—Give us more inspectors and then we will not want it.

9935. You deliberately think that is something you would recommend?—I have made the suggestion; I do not know about recommending it.

9936. I wanted to see how far you would recommend that, that inspectors, in order that they may discharge their duties they should have to appoint two workmen in case the men refused to do so, once in every year to examine the mine and report about it?—I would not put it in order to discharge their duties, but in order to help them in the discharge of their duties they should have the assistance.

9937. That you think is necessary. Now with regard to General Rule 4, all you desire there is that there should be two inspections in the shift when the men begin to work, and that both should be reported?—Yes.

9938. Subject to that you have nothing more to say?—Except that the succeeding shift should be considered two shifts.

9939. No doubt it would be considered two shifts. With regard to watering, your mines are getting very deep in the Midlands?—They are up to 700 yards.

9940. The deeper you go the hotter it is?—Certainly; that is a truism.

9941. Would not watering in one of these deep mines make the air much more oppressive for the men to work in?—Yes.

9942. Watering might in some cases very seriously damage the roof and the floors and the sides of the mine?—Yes.

9943. And be productive of much greater danger from falls of roof?—I would like, if possible, to see something else than watering if it could be arranged. I would like to see something better. I am afraid of two things with watering. I am afraid of the damage to the roadways and I am afraid of the neglect of it being done just when it was wanted. I should like it if something automatic could be suggested. Of course, with the watering we could arch, and it would get rid of falls, but arching for 300 or 400 yards is expensive and wants keeping in order, and in the Blackwell case the explosion came through the arching and returned at an angle of 50 deg.

Mr. A. Stokes 12 Dec. 1906

9944. You would like something done with this dust, but something other than watering?—Yes.

9945-7. Upon the question of the 1st General Rule, did I understand you to say that the same procedure to the Food and Drugs Act was to be established in connection with examining the air in a mine?—I only gave the Food and Drugs Act as an illustration.

9948. You suggested, I understood, that if there is a cap seen in a mine that should be evidence of inadequate ventilation?—Yes; the General Rule now is a matter of opinion.

9949. If there is any dispute, samples of the air should be taken and subjected to analysis. What is the object of that?—To settle the dispute.

9950. As to whether there is a cap or not?—No, as to whether there is an adequate amount of ventilation. If there is a cap upon it you would specify what it was—2 per cent., if you like. I have given these figures, and the inspector can then say, "There is 2 per cent. of gas in this atmosphere; that is inadequate ventilation"; but if the manager says it is not, and afterwards there is 2 per cent. found in the sample, then it is proof of inadequate amount of ventilation.

9951. That is a clumsy method of deciding the thing?—Can anybody suggest anything better?

9952. The first General Rule says the ventilation must be adequate for a certain purpose, that is, "to dilute and render harmless noxious gases to such an extent that the working places of the shafts, levels, stables, and workings of the mine, and the travelling roads to and from those working places shall be in a fit state for working and passing therein." That is the object?—Yes.

9953-4. You say if there is a cap in a lamp that rule should be considered to be broken?—Yes.

9955. In that case, however impossible it might be to prevent it, the man must be fined?—If the place is at work.

9956. However impossible it is to prevent it you say he should be fined?—I do not think, if a manager of a mine at work and the inspector went there, and the manager said, "We have this cap on; we have a big outburst of gas at the present moment," that the inspector would take legal action.

9957. I want to know if there is a cap in a lamp and there was no question about it that it was there, would you say that under those circumstances the man must be fined?—If the place was working.

9958. Whether he could help it or not?—He should withdraw the men.

9959. Rule 7 is the rule for withdrawing the men?—Yes.

9960. You say in your Report on p. 27: "There is no fixed standard of volume of air required in a mine beyond that it shall be adequate in amount to keep the mine in a fit state for working and passing therein. To satisfactorily comply with this standard the volume must be largely in excess of the bare requirements for the respiration of workmen and animals, and to provide for the combustion of lights. The ventilation is required to dilute and render harmless the noxious gases which exude from the strata or are produced in the mine. In some mines the volume of fire-damp is large and a regular quantity, whereas in others it is only occasionally found, and, further, there are mines where enormous quantities of fire-damp suddenly burst out, overpowering the best of ventilation." Is that so?—That is so.

9961. Now in the case of the last, where it overpowered the best of ventilation, is that man to be fined because under those particular circumstances there was a cap in the lamp?—No inspector would find such a breach, because the place would not be at work.

9962. If that state of things happens is he to be fined?—Certainly. If the place is at work.

9963. Would it meet your view if Rule 1 was left as it is, and in Rule 7, which is the rule for withdrawing the men, that it should be obligatory to withdraw the men under those conditions?—Is it not patent any man would withdraw the men?

9964. Will you listen to me for a moment. Would

Digitized by Google

Mr. A. H. Stokes.

12 Dec. 1906.

it meet your views if that rule were altered so as to make the conditions you are now describing conditions upon which the men should be withdrawn, but not necessarily that a man must be fined for a state of things happening in that sudden way you have described, which could not be helped?—No; I still stick to my ground, that if the working place is at work and there is found a percentage of gas exceeding the standard percentage, then that should be a proof of inadequate amount of ventilation.

9965. Will you show me in Rule 1 where there is anything about being at work?—I am suggesting the alteration of the whole thing.

9966. Rule 1 does not say anything about the men being at work?—I have said so.

9967. Rule 7 says the men are not to be at work, and are to be withdrawn under a certain state of things. If that is carried out, and the men are withdrawn, would you still fine the man under Rule 1?—Not if the men are withdrawn, because the place would not be at work.

9968. Why is it necessary to alter Rule 1 at all, if you withdraw the men under Rule 7 and under Rule 1, if he can satisfy the magistrates although there was a cap on a lamp it was beyond his control—why should he be fined?—Rule 1 has no standard; it is a matter of opinion whether there is an adequate amount of ventilation or not. It is almost useless trying it, because you get mining engineers who say half-an-inch cap on a lamp is not enough to withdraw men.

9969. There is something more. The magistrates have to decide in a case of that sort whether they think General Rule 1 has been carried out as far as is reasonably practicable?—Yes.

9970. If they came to the conclusion that although there was a cap in a lamp that as far as reasonably practicable the rule had been carried out, should that man be fined?—I should not take "reasonably practicable" out, because it would be easy to prove you ought to get more ventilation.

9971. If you put in that a cap in the lamp should be evidence of an inadequate amount of ventilation, then he would be excused by the words "reasonably practicable"?—I think he would be excused in this way: Supposing this was done, as you have just described, and the manager said to the magistrate there was an outburst of gas, which fouled our ventilation, and at that moment the inspector found this state of things, I think the magistrate would be right in dismissing the case.

9972. Why should you make the rule that the magistrates should dismiss the case under those circumstances?—This is the exceptional occurrence you put to me.

9973. I am putting to you if there is an outburst of gas the men are immediately withdrawn, but if you have General Rule 1 altered as you propose ——? —There is no breach of the Act.

9974. Yes, indeed; there is a cap found?—But the place is not at work if the men are withdrawn.

9975. Rule 1 has nothing to do with the men being at work?—I am taking the rule as I suggest it should be altered. I say the standard of ventilation should be named. I do not care whether you put it at 2 per cent. or 3 per cent., but let us have a standard, and not something indefinite.

9976. You go further and say if that happened suddenly, and the men were withdrawn, there should be no violation of any rule?—Not if the men are withdrawn, because the men are not at work.

(*Chairman.*) It seems to me you are at cross purposes here. The alteration suggested, I understand, in Rule 1 is that the cap should be considered as the test of whether an adequate amount of ventilation is or is not there. If an adequate amount of ventilation is not there, it would have been a breach of the rules, supposing it was reasonably practicable to do anything different. That is what I understand.

(*Mr. Ratcliffe Ellis.*) Although the men were withdrawn.

(*Chairman.*) Of course you can withdraw the men if there is a cap. I do not see that there is any difference between you and Mr. Stokes. Mr. Stokes says that should be the rule, but the "reasonably practicable," I imagine, would apply both to his rule as much as it does to the rule here.

(*Mr. Ratcliffe Ellis.*) Then it seems to me it does not want any alteration.

(*Chairman.*) I should have thought that it would require alteration, because of an adequate amount of ventilation. What Mr. Stokes says is, you must have an adequate amount of ventilation, and those words ought to be confined and limited by a further expression, that an "adequate amount of ventilation" means such ventilation as will not produce a cap in a lamp. That is all. I do not see that there is any difference between you as to the reasonable practicability of carrying out the rule.

(*Mr. Ratcliffe Ellis.*) The difference is this: As it stands now there may be other causes besides a cap in the lamp that the ventilation is not adequate. There may be no gas whatever there. If he simply says that the test of an adequate amount of ventilation is the cap in the lamp, it only applies to one condition of things, and it may be an impossibility to avoid it.

(*Chairman.*) If it is an impossibility to avoid it, it is impracticable under the preface to the General Rules: "The following General Rules shall be observed so far as is reasonably practicable."

(*Mr. Ratcliffe Ellis.*) In these questions of ventilation it turns on the question of whether or not anything was omitted that might have been done to get an adequate amount of ventilation.

(*Chairman.*) I understand Mr. Stokes suggests the rule should be altered. The rule says an adequate amount of ventilation shall be constantly produced, but he says that is a vague expression, and he wants it altered, and that in certain circumstances a cap on a lamp should be considered as absolute proof that there is not an adequate amount of ventilation.

9977. (*Mr. Ratcliffe Ellis.*) Your view is, of course remembering at the moment that there may be an inadequate amount of ventilation from many causes except gas, where there is no gas at all, the ventilation may not be sufficient to keep the foul air away?—There would be no cap on the lamp.

9978-9. You would desire to alter General Rule 1 by saying that where there is a cap on the lamp it shall be *primâ facie* evidence of an inadequate amount of ventilation, or something of that sort?—I want a standard fixed.

9980. You want a standard fixed for gas, but do you want a standard fixed for other things?—Certainly.

9981. How many standards do you want fixed?—There will be only two gases you will deal with generally.

9982. In a mine where there is no gas?—Then there is no standard wanted.

9983. You want nothing?—I want a cap standard for firedamp.

9984-5. It is not a question of gas—it is a question of ventilation. When there is no gas whatever, are you content that the words should be "an adequate amount of ventilation" as they are now?—If there is no gas in the mine, then the rule would not apply.

9986. (*Chairman.*) With regard to an adequate amount of ventilation, surely a man might be absolutely suffocated when there was no gas at all?—I beg your pardon; I see what you mean. If there is gas at all, let it be as it is.

9987. (*Mr. Ratcliffe Ellis.*) You say "an adequate amount of ventilation" is sufficient if there is no gas, although there is no standard at all?—When I say "gas," I mean CO_2 and CO and CH_4. If you tell me there are none of those gases present, let the Rule stand as it is.

9988. You would still leave it to the magistrates to decide whether the ventilation was adequate or not?—When there is no gas.

9989. Why not leave the same thing to the magistrates to decide when there is gas?—Because there is no danger to life in the first case.

9990. It is not a question of danger to life. That can be provided for by Rule 7. If you can trust the magistrates to say what is adequate where there is no gas, although there may be defective ventilation, why cannot you trust the magistrates to say what is ade-

Digitized by Google

quate when there is gas?—I should be pleased if you would put down the cubic feet per man as a standard.

9991. Will you answer my question first? Will you tell me why in one case you can trust the magistrates and not in the other case?—Because in one case the safety of life does not come in.

9992. They may be suffocated in the other case altogether?—You cannot have a vacuum in the pit.

9993. Why in one case can you trust the magistrates and not in the other?—Because I think you have not grasped that in the case you are putting before me you must have a vacuum to kill a man. If there is no gas of any sort, no firedamp and no carbonic acid gas, then if there is any danger to the man it must be a vacuum.

9994. I cannot grasp why you say in one case you can trust the magistrates and you cannot trust the magistrates in the other?—I trust the magistrates in all cases, if you will give me a standard.

9995. (*Chairman.*) You say it is better that the magistrate should have a certain amount of guidance where he can, by Act of Parliament. That is, I suppose, what you say?—That is what I want.

9996. (*Mr. Ratcliffe Ellis.*) With regard to the Special Rules, did I understand you to say something about a Board to be established for Special Rules?—Yes. I said there should be a Model Code of Special Rules to be prepared first by the Secretary of State and the Staff of Inspectors, and then submitted to the owners and workmen, who would send in objections and amendments. Those objections and amendments should then be considered by the Secretary of State and his Staff, and the points at variance between them should be very carefully considered by a joint meeting of representatives of all parties. That is for the Model Code.

9997-8. What did you say about a Board?—I said there are some little local things that apply to the districts, and they should be settled by a Board chosen from the district to deal only with local requirements.

9999. What sort of a Board?—Settled in the same way—locally. When I say submitted to the owners, I mean the owners in the United Kingdom. When say submitted to the workmen, I mean the workmen in the United Kingdom.

10000. What is the Board?—I do not know that I used the word "Board" in relation to the Model Code. That is what I meant for the local code.

10001. Did you propose the disestablishment of the existing Rules and re-establishing them?—I did not want to propose disestablishment. I propose revising them all and putting down what Special Rules could be made general.

10002. The officials and men have all got used to those Rules. They have learned and followed them and carried them out, I hope. Do you think that it would be conducive to safety to make a brand-new set?—I think that it would be conducive to safety to revise the present Rules and have a uniform standard.

10003. Do you think the Special Rules are so very defective as to require revision?—No doubt they want revision, and a number want adding to.

10004. Is it not dangerous to do that unless there is good reason?—There is good reason—the quantity of accidents.

10005. The men in the different districts have got accustomed to these Special Rules—they obey them by instinct almost. Is it not dangerous to establish new Rules?—No. I will tell you why. Here is a man who works in Derbyshire, say, at a colliery near Sheffield, and in another month he is working in Yorkshire under another Code of Rules. Is there any reason why that man should stick to Derbyshire?

10006. Do you propose a set of Special Rules for the whole kingdom?—A model code for the whole kingdom.

10007. What advantage would there be in that?—Uniformity—to get rid of what I have just described to you.

10008. Is it desirable that in the different districts there should be uniformity?—Yes, for every rule that you can make uniform.

Mr. A. H. Stokes. 12 Dec. 1906.

10009. I understood those were to be made General Rules?—I call them Special Rules. If you get a man with a model Code of Rules going from one county to another, it would meet the very objection you put. He would go into the next county knowing the same code was there.

10010. Do you think that is of such frequent occurrence and of such great danger as to justify what I call disestablishment of all these Special Rules and the formulation of a new code for the whole United Kingdom?—No more than a new Act of Parliament.

10011. Will you answer my question—yes or no? Do you think that moving from one district to another the Special Rules existing are so defective and so prejudicial to safety as to justify the disestablishment of all those Rules and the formulation of a new code for the whole kingdom?—I do not think so, with all the qualifications you put in, but I think they want revision.

10012. Are not those qualifications proper qualifications?—The question is too severe like that—I mean if you put all those qualifications.

10013. You said you had some good managers in your district?—Yes.

10014. Are they able men?—Very.

10015. With whom the safety of a colliery can be fairly trusted?—Yes.

10016-20. It is upon the care of those men the safety very largely depends?—Yes.

10021. The Act imposes upon the manager the duty of formulating a Code of Rules, and not the Home Office?—Are you speaking of Special Rules?

10022. Yes?—Yes; that is what I object to.

10023. Do you disapprove of that?—Yes.

10024. You say he ought not to formulate the Rules?—No.

10025-6. You say the Government ought to do it for him?—Yes, because the Staff of Inspectors ought to be the best experts in the United Kingdom on safety. I am speaking of the 12 inspectors of the districts. They ought to be the best experts, or else they have badly used their time.

10027. I do not wish to depreciate the inspectors, but there are mining engineers who are as good as inspectors?—Even better; but on a question of safety the inspectors are experts.

10028. Do you mean to suggest among the very eminent mining engineers who have charge of our collieries that there is nobody as qualified as the inspectors to say what is necessary for the safety of the mine?—I say just the opposite.

10029. I want to know why they are to be deprived of the obligation which the Act puts upon them, of formulating themselves rules they consider are necessary for the good discipline and safety of the mines?—Because they would have their innings just the same when they come to consider them. Is every manager at a colliery to frame a code of rules for himself by the law? How bad it would be if we had 200 collieries in my district and every one with a different code of rules. It would be bad for everybody.

10030. In order to secure the safety of the men in this district is it necessary to disestablish the existing rules and formulate a new set by the Home Office?—I do not like that word "disestablishment."

10031. If you are only going to re-establish the same rules, what is the good of that?—None whatever, but that is not my suggestion. My suggestion is to revise the present rules and make a model code for the country.

10032. You did say if there was a dispute ultimately that it should be settled by arbitration?—I said a meeting of the whole body.

10033-4. You cannot settle it with a meeting if you do not agree. If you do not agree and it is necessary for somebody to decide the question, do you agree that it ought to be an arbitrator?—I hope it will never get that.

10035. (*Chairman.*) Would you trust the Home Secretary in that case?—I would rather it should be settled by an independent party altogether for myself.

10036-7. (*Mr. Ratcliffe Ellis.*) The method adopted

Digitized by Google

Mr. A. H Stokes.

12 Dec. 1906.

is a different matter altogether?—An independent party, if you fail at the meeting, but I hope it would never come to that.

10038. Now with regard to the abandonment of mines. All you want is to see a plan either at the mine or at the Home Office?—Do you mean a plan of the abandoned mine?

10039. I mean a plan of any mine?—A working plan or the plan of an abandoned mine.

10040. A working plan or the plan of an abandoned mine. Is that all you require, that you should be able to see a plan of that mine itself, either at the Home Office or at the mine?—I want to see it at the Home Office if it has been abandoned for a certain time.

10041. Supposing you have a pit where there are two seams working, and one seam is not working, do you want a plan of the seam that is not working sent to the Home Office if you can see it at the pit?—I want it sent to the Home Office.

10042. Supposing a mine has not been working for a year owing to bad trade, but you can start to-morrow if you think fit, you have the material, the plant, and everything else, and you say trade has not justified you in working this mine; do you suggest that the owner is to be required to send the plan to the Home Office?—If all the rails were in the pit and the ventilation going on, and persons going down examining it, I should do nothing of the sort. I should consider it useless.

10043-4. If there is one seam which is not being worked where a number are, do you propose that you should send three months' notice and after that three months the plan should go to the Home Office?—If they have drawn the rails out and stopped the ventilation. We have had a fire at a colliery, and they lost all the plans. If the plans of some of the abandoned mines had been at the Home Office they would have been sent back and had copies of them.

10045. That is one case out of a great many?—I only gave you a good reason, as I thought.

10046. Suppose they lost all the plans?—If they had any deposited as I suggest they could have sent for those.

10047. Would you suggest, in order to guard against that mischief, a duplicate of the working plan should be sent to the Home Office?—No.

10048. With regard to Section 21, you do not seem to understand it; either you do not or I do not. This requires a certificated manager to be in daily supervision of the mine. That manager is appointed by the owner?—Yes.

10049. Then supervision is either to be by him or by an under-manager, and that under-manager is to be appointed either by the owner or the agent?—Yes.

10050. Do you say he ought not to be appointed by the owner but by the manager?—I say he ought to be appointed by the manager and not by the agent.

10051. Why not by the owner?—In a limited company how are you to appoint by the owners?

10052. Take the agent. You know there are a great many consulting engineers who have had a large experience in mines?—Yes, but the manager is responsible for the carrying out of rules, and he should appoint his chief official.

10053. Would you not let even the owner do it?—Yes, but not the agent, because although there are some very eminent mine agents at some collieries, in other cases they are simply clerks in an office.

10054. With reference to the surveys, do you think that there should be special rules established for surveys?—We want revision of the rules with reference to the surveys.

10054.* (*Mr. Wm. Abraham.*) What has been the character of the inspection made by working men in the districts that you have been engaged in. Have they been satisfactory or otherwise?—Scarcely any made.

10055. What is the character of it? Was it well done? Was it satisfactorily done?—Yes, very well done.

10056. Do you remember instances where the report of inspections made by the workmen was brought as testimony of the character of the colliery at inquests, and so forth?—I would not like to answer that question. I am undecided about it. There is a danger in it being done.

10057. Is it in your experience, where large colliery explosions have taken place, that the management have brought forward the report of the inspection by the workmen to show the character of the colliery, and so forth. Would that be done if it were not felt that these inspections were done in a very satisfactory manner?—I do not quite follow that.

10058. In your experience is the character of the inspections made by the workmen, generally speaking, very satisfactory?—Yes.

10059. That being so, do you think that to increase them would tend to create more safety in mines than there is at present?—I think so, and beyond that satisfy the workmen themselves in the mine.

10060. Is there not in your district a number of men, young practical men, who hold first and second class certificates of competency of management?—You mean at work as working miners?

10061. Yes?—I do not know about first-class, but there are a number of second-class men working miners.

10062. To meet the requirements which you and I have in our minds these men would be competent as well as practical to make the inspections?—Certainly; I may tell you a number of the officials in the mine are certificated men.

10063. My point is this: that we have a number of men engaged as colliers who hold certificates of competency. That would give them the status necessary to meet the requirements of Mr. Ellis?—We have some well-trained, respectable, intelligent men, whom I would not hesitate for the moment to select to make the inspections.

10064. You would have no difficulty to select from your own district a certain number of these men who may be employed in another grade of inspectors?—I do not think I should have any difficulty.

10065. Let us come back to watering. You answered Mr. Ellis that when roads are watered it would create a kind of depression or inability on the part of the men to work?—I know what you mean. It is not quite inability. It would be detrimental, perhaps, to their health.

10066. Let us go to the bottom of this. You have had experience, doubtless, in travelling through dry and dusty roads and of travelling through roads well watered?—Yes, I have seen some of your best watered mines in South Wales, and have been along them.

10067. Is not a man better prepared to start his work if he has travelled a mile to work in the morning through a watered road than through a dry and dusty one?—Yes.

10068. It is detrimental to work?—Because the moist atmosphere is constantly upon you. You can stand cold far better in Canada than here, because the air is dry.

10069. Nobody suggests at the working places?—It is the ventilation that comes off these roads. When you get a hygrometer in the working places you find the air saturated. That is what Mr. Ellis referred to.

10070. We do not agree with this suggestion, that watering of the roads creates any difficulty, but I want to know your opinion. Have you seen any road so watered that it carried its effect into the working faces where the men were hewing coal?—The only way to test that is by a hygrometer; if you find the air saturated.

10071. In the working places it is not in the same condition as it is on the road?—You cannot get beyond saturation.

10072. You do not water the inner workings to that extent?—I am speaking of the atmosphere. I do not know whether I understood you aright, but I am speaking of the atmosphere solely.

10073. Do you think that there is something in the atmosphere which prevents a man doing his work?—No; in fact, it is perhaps better for him than swallowing heaps of coal dust.

10074. Much better to swallow a litle dampness than dust?—Yes.

10075. I think in answer to one of the Commissioners you said that mines are much deeper and much warmer now than they were 20 or 30 years ago?—Yes.

Digitized by Google

10076. Does that not carry with it that they are rather more dangerous, too?—I do not know that they are more dangerous. You have to look at two things, the skill and ability brought to bear upon mining is such that mines are a good deal safer than they were 30 years ago.

10077. The mines themselves, with their natural conditions, are more dangerous?—I should say yes.

10078. I do not want in any way to depreciate the skill and the conscientiousness of managers, but it is because of that skill and because of the inspection to see that that skill is properly applied that less accidents happen now than used to?—Yes.

10079. Has the number of accidents increased pro rata with the increase of production?—I cannot quite answer that question.

10080. (*Mr. Cunynghame.*) We have it in evidence already?—I may tell you, in my district, there is one inspector for each 34,000 workmen.

10081. (*Mr. Wm. Abraham.*) Would not doing away with the agent at a colliery reduce the number of men responsible for the safety of the mine?—I think not, because we can scarcely ever fasten any responsibility on the agent so that we can do away with him.

10082. Would it not be better to get his position improved; let an agent be appointed who could be made responsible? I mean have the qualification of the agent changed?—I think that there should be no one between the manager and the owners.

10083. Now there are three men responsible for the safety of the mine?—And the middle man slips through your fingers.

10084. I agree with you. Fortunately, in my own experience, I have known few agents. Of course, one would not care to say much with regard to their ability or anything else, but still he is one who is responsible?—I hardly think so. One man can manage a mine, but I am quite sure two cannot. That I am equally certain of. I would do away with the agent altogether.

10085. You have a right to your opinion. With regard to Section 16—I did not have the advantage of hearing your examination-in-chief—"proper apparatus for raising and lowering persons at each such shaft or outlet shall be kept on the works belonging to the mine; and such apparatus, if not in actual use at the shafts or outlets, shall be constantly available for use." Do you not think it possible to strengthen that rule?—No, if it is constantly available for use what more do you want?

10086. Supposing you have to put it up?—Then it is not constantly available for use.

10087. Have you known cases where you have to rig up a kibble or bucket?—In some little place where there have been one or two men working.

10088. Supposing it was in a place where there were 300 men?—I do not know of such a case.

10089. Supposing you knew in your district of such a case, would you think this rule sufficiently strong to meet that case?—I should think so. "Constantly available" cannot be strengthened. There must be something in the case of one shaft getting laid up; there must be kept at the other shaft some apparatus in some way constantly available for the exit of the men.

10090. If it is a bucket with a rope, with no cage or guides, is that, in your opinion, complying with this rule?—No. I had a case last year which I submitted to the Home Office similar to that, and the managers altered it. I held it was not "proper apparatus." I told the manager it was not and that I would report it to the Home Office, and the Home Office upheld my opinion about it, and it has been altered.

10091. Would it not be a great improvement in this rule if it was stated that we should have a cage, and guides, say, as well, where a certain number of men were working, commencing with 20 or 30 or 40?—It may be, but I have met with no difficulty. I will tell you of one case where I held that it was not. I held that another rule came in. There is another rule, if you will look at it, a general rule, about the use of guides for the raising of men and materials; if it is over 30 yards deep it must have guides in unless exempted by the inspector, and I said I would not exempt it, and that they must put them in. It is General Rule 25: "Every working shaft used for the purpose of drawing minerals or for the lowering or raising of persons shall, if exceeding 50 yards in depth and not exempted in writing by the inspector of the district, be provided with guides."

10092. My point is this, and we want your assistance upon it: Knowing what we now hear, is it not necessary for the safety of the men working in any colliery that where an accident might happen to one shaft which prevents them coming to the surface for a large number of hours, to have this rule strengthened so as to demand guides and a cage wherever two shafts are necessary?—After what you have told me, but I have not met with a difficulty. I pointed it out to the manager in this way, and I put it forcibly. I said, "Supposing there is an explosion in this pit and the downcast shaft is wrecked, you cannot tell me you are going to take five or six hours bringing up the men, five or six men riding in a kibble to the top; they will want to get out as fast as they can and as many as you can bring up at a time." There are cases in which you would get all the cages and guides destroyed, and then you would have to use a kibble. In the case I had I put it before the manager, and then I consulted the Home Office about it, and the manager said, "Very well, I will alter it," and it was altered, but I had to put it in a forcible way.

10093. In the case I was referring to, the inspector when he went on the surface said, "Supposing there is a fire here, what about it"?—I do not know the case you are referring to.

10094. We want to get your opinion and guidance in this matter?—That is what I should do if it were my case, and what I have done. You have the words "proper apparatus."

10095. "Available for constant use"?—It must be not only constantly available, but proper, if you look at the words of the rule.

10096. It has been held "constantly available" need not be in readiness in its place, but to be ready to be put up, and the erection of a kibble or bucket has been considered efficient where it took fourteen hours to bring the men up?—I should have held it was not a proper apparatus, not that it was not constantly available, but that it was not a proper apparatus.

(*Mr. Smillie.*) Can you tell me the number of hours a day your assistants and yourself are engaged, roughly. May we take it at about ten hours per day?—I am perhaps a little methodical in my work, and I take down the hours every day I am officially engaged, and I think, a year or two ago, I made out that it was nearly eleven hours a day.

10097. Supposing we take it at ten hours per day on the average?—I wish, if you make an eight hours Bill, you would include the mines inspectors.

10098. I find that you have travelled on an average, on the days that you were engaged, nearly 50 miles per day?—Have you taken the whole of the days?

10099-101. The whole of the days you are engaged. We might take that at two hours' travelling?—25 miles there and 25 miles back, but that includes conveyances. It is not 25 miles by rail.

10102. In answer to Mr. Edwards, you said while your district seemed large, it was really four counties, and so convenient were they to each other, that it was not so very large?—Yes.

10103-5. Would you be surprised to know that it takes fifty days of your time travelling, and each of your assistants' time travelling?—I am pleased to say I am able to do a lot of work in the train. I draft out reports and other things, and a lot of the fifty days are spent in actual work. I do as much work in the train probably as I do at home.

10106. Have you any women employed about the surface of your mines?—Not one.

10107. Have you had any experience of women working about the mines in your districts?—I had an experience of women when I was a colliery manager, because we had them, and they were a good deal of trouble.

10108. Do you think that it is suitable work for women?—No, I do not.

10109. Have you any unskilled foreign workmen working underground in your mines?—Not one that I know of. We have plenty of Irishmen, and they speak the language, and they also speak English, but

Digitized by Google

Mr. A. H. Stokes.

12 Dec. 1906.

we have not got a Code of Rules in Irish for them or anything else.

10110. Do you think that persons who are absolutely ignorant of the English language are quite safe to go underground in fiery mines?—I have no experience, and cannot give a reply to that question.

10111. You have had experience of mining?—I have had no experience of the employment of persons who cannot speak the language.

10112. But you have had experience of the employment of persons who can speak the language?—Yes.

10113. Do you think it would make their employment safer if they could not speak the language?—No, but some men cannot read the language, although they understand a great deal.

10114. I want your opinion, if you care to give an opinion, whether you think the employment of unskilled foreign workmen who do not understand the language is a safe thing?—I would say they should not go into mines.

10115. I suppose the reason why managers and under-managers under the Act have certificates is as a guarantee to some extent that they are really skilled?—Yes, it certainly is a guarantee of the skill and ability of the man.

10116. Would you favour compulsory certificates for firemen or deputies in mines?—No, I do not think so. We are guarded now by the manager being responsible for the appointment of competent persons, and if he appoints an incompetent person he takes the responsibility; therefore he must make himself assured that it is a competent person he is appointing.

10117. Would you alter the Mines Act to make it read that an owner of a mine shall appoint a competent person to be a manager with a certificate at all?—There you have a different thing altogether. A man not only wants skill and ability, but he has the responsibility on his own shoulders for the management of the place. If you go on that system you would have to go down until you get to the stallman who has all the responsibility of the stall and the safety of those men's lives.

10118. Do you not think that there is a difference between the responsibility of the stallman, who is only responsible for himself, and the responsibility of a deputy, who may be responsible for 100 men?—It is the same as a doctor and a chemist. The doctor is responsible for the prescription, and you go to the chemist who makes it up.

10119. Do you know of any deputies who have 100 men under them in one district?—Do you mean 100 men just at one time—in charge of one deputy?

10120. Just at that moment?—The largest at one moment. There would be two or three deputies following on. No, I think not.

10121-2. There are cases where deputies require to run the faces in the morning, examining the faces for from 60 to 80 men. You require a certified manager at the present time for a mine with over 20 persons in it?—Yes.

10123. His certificate is to prove that he is qualified to manage the mine?—Yes.

10124. That he has the necessary skill?—Yes.

10125. It is because he must look after the safety of those men that he requires the certificate?—Yes.

10126. Is it more necessary that a deputy who has from 25 to 60 men under his charge at all times should be a certificated person?—I do not favour this idea of giving certificates. If you take a deputy who has charge of 10 men, and that man should have a cercertificate, then you get to the stallman who is in charge of 10 men, and that man should have a certificate because he is in charge during the whole shift of that working place, but the deputy is only in the place for ten minutes.

10127. If you want to make it ridiculous you could say a man should have a certificate to look after himself. I think we may take it that you are not in favour of certificates?—Not going so low, no.

10128. You hold a different view upon that from the workmen?—I would not recommend certificates for engine-men.

10129. Do you say that workmen inspectors should be appointed from the colliery at which they are employed?—It was a suggestion I made.

10130. Are they in a better position to examine the collieries because they work in them?—I should say so far better.

10131. Why?—In the first place, they know a great many of the roads of the pit. They will not want so much care taken with them when they go round; they know the system of work; they know the ventilation, or feel it; and they know their fellow-workmen pretty well, and no doubt a fellow-workman would communicate with them as they went round, and tell them anything.

10132. Do they not go under the charge of an official of the mine when they go round?—Yes; but still they would not be debarred from anyone speaking to them.

10133-4. The miner is not supposed to run from place to place in his mine, and it is a breach of the Special Rule to be out of his place. A man may be years in a mine, and yet not know anything more than about the place he is in?—He must go backwards and forwards to work, and they are also shown the return airways. If you have a knowledge of all this you have a good knowledge of the district of the mine.

10135. Two men employed in a mine might not give a report to their employers as freely of the particular mine at which they were employed, and at which they were going to be employed on the following days, as they would to strangers?—I think the working-men inspectors should only report to the inspector.

10136. To obviate that difficulty?—Yes.

10137. The inspector would soon let the manager know what those men had reported?—In a few hours.

10138. Consequently there might be danger of those men being harshly treated?—The inspector would watch that. He would know who was appointed.

10139. Do you think that the Government inspectors at the present time have sufficient power under the Act?—I think we have plenty.

10140. You think you have plenty of power?—Yes.

10141. Let me give you a case in which you found in a naked light colliery there was gas being given off which you considered was dangerous, and you called the attention of the manager to it, and he agreed that there was gas being given off, but when you suggested putting in safety lamps he said "No." Have you power to force him to put them in?—I should say so. I should say we have plenty of power by the 8th General Rule. If it were my case, and I was inspecting, the first thing that I should do before I left the colliery—I should not wait for the post—would be to call his attention to the 8th General Rule.

10142. And then what would you do?—I should call his attention to Section (a): "In any place in a mine in which there is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous." I should tell him that the giving off of gas which you have just described was likely to be dangerous, and that he should put them on with safety lamps.

10143. What would you do then?—If he refuses?

10144. Yes?—He might perhaps flatly say: "I shall not." I do not think he would, but if he does, I should write to the Home Office the same night and get a reply back probably by the next post to say I was to take legal proceedings.

10145-6. You would prosecute?—Yes.

10147. Do you think you would get a conviction?—I think before a Stipendiary Magistrate I should.

10148-9. Supposing it is your opinion that safety lamps should be put in, have you power to enforce them?—Now you are giving a different case from what I understood you to put previously. What I understood you to put before was, supposing a quantity of gas was given off into the ventilation, known to the manager, known to the inspector, what should I do; I told you what I should do. I take it the case you are now putting is this. That there is not a quantity of gas given off, but that the inspector thinks he should have safety lamps. Those are two different cases altogether. If the gas is given off, well known to all the officials and the inspector, then it comes under General Rule 8, but in the other case there is no gas given off, and the inspector cannot prove there is gas, and says "I think it is likely there will"——

Digitized by Google

10150. Supposing an explosion of gas has taken place in a naked light colliery, and after the explosion you warned the manager that there should be safety lamps put in there in order to prevent further explosions, and he refused to do so, have you any power to force him to do so?—I should test it under the 8th General Rule.

10151-4. The standard you suggest of a cap on a lamp would not be fully satisfactory, because there is CO_2, black damp, and CO, and also powder smoke and other things?—I should have said in giving a standard for firedamp I would make similar standards for the various other gases.

10155. Your real position is that the words "adequate amount" are not sufficient clear?—That is it. I would cross them out of the Rule and put in a standard for all gases which, if not come up to, should be proof of an inadequate amount of ventilation.

10156. (*Dr. Haldane.*) There is one question I want to ask you upon your last answer. What sort of standards would you suggest for adequate ventilation? Would you suggest a chemical analysis of the gases?—You were not here when I was referring to the General Rule. May I just read again what I said about it? I was referring to General Rule 1, that it was unsatisfactory to say "an inadequate amount of ventilation"; there should be something definite. Then I went on to say the quantity of air is to be measured once a month. If the quantity, why not the quality, and both, entered in a book to be kept for the purpose? The quality could be tested by the small flame of an ordinary safety lamp burning either colza oil or a mixture of two-thirds colza and one-third paraffin oil. A blue cap of any size in a working place to be the test of inadequate ventilation, and then I said 2 per cent. A similar test for return airways, but a lower standard fixed for main returns, say half an inch cap with 3 per cent. or 4 per cent. To decide this, if disputed at the time of inspection, two bottles may be taken and the contents analysed. The analyses to be final. I omitted to say here, my Lord, that I would make a similar standard for other gases, which if present should be proof of an inadequate amount of ventilation.

10157. You propose that an analysis be made once a month, or at some intervals?—No; the test should be made with a safety lamp, and if the manager disputed the accuracy, then a sample bottle should be taken similar to the procedure under the Food and Drugs Act.

10158. Who should take the samples?—The inspector.

10159. At his visit?—Yes.

10160. He should take samples of the air?—Take a bottle of water down and empty it.

10161. In the event of any dispute occurring, he could have that air analysed?—If an inspector takes a lamp down and tests it, and says, "Here is a cap of such a size in this working place, and I think it exceeds 2 per cent., which is the standard," and the manager says, "I admit it," then he would withdraw the men, but if he said, "I dispute it," I should say "Very well, let us have two bottles of water," and take a sample to settle it. There would be a standard, and of course there would be a similar standard with other gases.

10162. You would not propose to make it obligatory on the manager to take samples at intervals and have them analysed?—No, but I would make him enter the quality of the ventilation in his report book by the test of the lamp.

10163. Not any other test?—In the case of prosecution, it should be the test I have put before you.

10164. You would not recommend the German plan. By the German law, in Westphalia the mine-owners are bound to make analyses, I think, once a quarter, or something of that sort?—No, I would have a record by the man who measures the air every month, and the inspector's test should be similar, but in any case of dispute the analysis should be made. Then you get rid of the difficulty of those words, "Inadequate ventilation," which are very difficult in prosecutions, being a matter of opinion. I would fix a standard for all gases.

10165. You have not considered particularly what the standard should be?—I gave it roughly, just to guide you as to what I meant—2 per cent.

10166. Carbonic acid gas, for instance?—It would be considerably less.

10167. You have not considered that particularly. Do you think there ought to be some standard for that?—Give it half of 1 per cent., it was to fix a standard which should prove the adequacy of the ventilation.

Digitized by Google

Digitized by Google

APPENDICES.

Digitized by Google

Digitized by Google

LIST OF APPENDICES.

Appendix.	Title.	Page.
I.	Return showing the Growth of the Inspectorate as compared with the Growth of the Mining Industry.	349
II.	Return showing for each Mines Inspection District the Number of Inspectors, the Number of Mines and Quarries at Work, and the Number of Fatal Accidents for the year 1905.	350
III.	Return showing for each Mines Inspection District the Death Rate per 1,000 Persons employed at Mines under the Coal Mines Regulation Act for the years 1896–1905.	352
IV.	Prosecutions—	
	Table I.—Prosecutions of Owners, Agents, and Managers for Offences under the Coal and Metalliferous Mines Regulation Acts for each year during the period 1896–1905.	354
	Table II.—Prosecutions of Owners, Agents, and Managers for Offences under the Coal and Metalliferous Mines Regulation Acts during the years 1896 to 1905, classified according to the nature of the offence.	355
	Table III.—Table showing the Number of Prosecutions and Convictions of Owners, Agents, and Managers of Mines for Offences under the Coal and Metalliferous Mines Regulation Acts, according to Inspection Districts, during the Years 1896–1905.	356
	Table IV.—Prosecutions of Workmen by Owners for Offences under the Coal and Metalliferous Mines Regulation Acts in each Inspection District during the years 1901–1905.	357
	Table V.—Prosecution of Workmen for Offences under the Coal and Metalliferous Mines Regulation Acts during the years 1901–1905, classified according to the Nature of the Offence.	358
	Table VI.—Prosecution of Owners, Agents, and Managers for Inadequate Ventilation under the Coal and Metalliferous Mines Regulation Acts during the years 1896–1905.	359
	Table VII.—List of Prosecutions of Workmen in each Inspection District for Contraventions of Rules about Matches and Smoking under the Coal and Metalliferous Mines Regulation Acts during the years 1903, 1904, and 1905.	359
V.	Explosions of Firedamp or Coal Dust—	
	Table I.—Return showing for each Mines Inspection District the Number of Separate Explosions of Firedamp or Coal Dust and the Number of Persons Killed or Injured thereby in Mines under the Coal Mines Regulation Act for the years 1896–1905.	360
	Table II.—Table showing the Number of Explosions of Firedamp or Coal Dust, classified according to cause, and the Number of Persons Killed and Injured thereby in Mines under the Coal Mines Regulation Act for the years 1896–1905.	362

Digitized by Google

Appendix.	Title.	Page.
VI.	Falls of Ground—	
	Table I.—Total Number of Deaths from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act for the years 1896–1905. (A.)*	364
	Table II.—Total Deaths from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act for the years 1896–1905 *for each District.* (A.)	365
	Table III.—Deaths from Accidents from Falls of Ground (*at the Working Face*) in Mines under the Coal Mines Regulation Act for the years 1895–1906. (A.)	366
	Table IV.—Deaths from Accidents from Falls of Ground (*on Roads while Repairing or Enlarging*) in Mines under the Coal Mines Regulation Act for the years 1896–1905. (A.)	367
	Table V.—Deaths from Accidents from Falls of Ground (*on Roads while otherwise Working or Passing*) in Mines under the Coal Mines Regulation Act for the years 1896–1905. (A.)	368
	Table VI.—Deaths from Accidents from Falls of Ground (*in Shafts*) at Mines under the Coal Mines Regulation Act for the years 1902–1905. (A.)	369
	Table VII.—Total Death Rates from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905. (B.)	370
	Table VIII.—Total Death Rate from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905 *for each district.* (B.)	371
	Table IX.—Death Rates from Accidents from Falls of Ground (*at the Working Face*) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905. (B.)	372
	Table X.—Death Rates from Accidents from Falls of Ground (*on Roads while Repairing or Enlarging*) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905. (B.)	373
	Table XI.—Death Rates from Accidents from Falls of Ground (*on Roads while otherwise Working or Passing*) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905. (B.)	374
	Table XII.—Death Rates from Accidents from Falls of Ground (*in Shafts*) at Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1902–1905. (B.)	375
	Table XIII.—Total Death Rates from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905. (C.)	376
	Table XIV.—Total Death Rates from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905 *for each District.* (C.)	377
	Table XV.—Death Rates from Accidents from Falls of Ground (*at the Working Face*) in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905. (C.)	378
	Table XVI.—Death Rates from Accidents from Falls of Ground (*on Roads while Repairing or Enlarging*) in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905. (C.)	379
	Table XVII.—Death Rates from Accidents from Falls of Ground (*on Roads while otherwise Working or Passing*) in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905. (C.)	380

* The letters placed at the end of each title denote that the various tables marked (A) give the total number of deaths, (B) death-rates per 1,000 persons employed, (C) death-rates for 1,000,000 tons of mineral raised.

Digitized by Google

Appendix.	Title.	Page.
VI.	Falls of Ground—*continued.*	
	Table XVIII.—Death Rates from Accidents from Falls of Ground (*in Shafts*) at Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1902–1905. (C.)	381
VII.	Haulage Accidents—	
	Table I.—Total number of Deaths from Haulage Accidents in Mines under the Coal Mines Regulation Act, for the years 1896–1905. (A.)*	382
	Table II.—Total Deaths from Haulage Accidents in Mines under the Coal Mines Regulation Act for the years 1896–1905 *for each District.* (A).	383
	Table III.—Death from Haulage Accidents (*Ropes or Chains Breaking*) in Mines under the Coal Mines Regulation Act for the years 1896–1905. (A.)	384
	Table IV.—Deaths from Haulage Accidents (*Run Over or Crushed by Trams or Tubs*) in Mines under the Coal Mines Regulation Act for the years 1896–1905. (A.)	385
	Table V.—Deaths from Haulage Accidents (*other Haulage Accidents*) in Mines under the Coal Mines Regulation Act for the years 1896–1905. (A.)	386
	Table VI.—Total Death Rates from Haulage Accidents in Mines under the Coal Mines Regulation Act, per 1,000 Persons employed Underground for the years 1896–1905. (B.)	387
	Table VII.—Total Death Rates from Haulage Accidents in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground, for the years 1896–1905, *for each District.* (B.)	388
	Table VIII.—Death Rates from Haulage Accidents (*Ropes or Chains Breaking*) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905. (B.)	389
	Table IX.—Death Rates from Haulage Accidents (*Run Over or Crushed by Trams or Tubs*) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905. (B.)	390
	Table X.—Death Rates from Haulage Accidents (*other Haulage Accidents*) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905. (B.)	391
	Table XI.—Total Death Rates from Haulage Accidents in Mines under the Coal Mines Regulation Act, per 1,000,000 tons of Mineral raised for the years 1896–1905. (C.)	392
	Table XII.—Total Death Rates from Haulage Accidents in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905 *for each District.* (C.)	393
	Table XIII.—Death Rates from Haulage Accidents (*Ropes or Chains Breaking*) in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905. (C.)	394
	Table XIV.—Death Rates from Haulage Accidents (*Run Over or Crushed by Trams or Tubs*) in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905. (C.)	395
	Death Rates from Haulage Accidents (*other Haulage Accidents*) in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905. (C.)	396
VIII.	Return showing for each Inspection District the Number of Fatal Accidents and Deaths from Overwinding at Mines under the Coal Mines Regulation Act for the years 1896–1905.	397

* The letters placed at the end of each title denote that the various tables marked (A) give the total number of deaths, (B) death-rates per 1,000 persons employed, (C) death-rates for 1,000,000 tons of mineral raised.

Digitized by Google

Appendix.	Title.	Page.
IX.	Return showing for each Inspection District the Number of Fatal Accidents on Surface Railways, Sidings, or Tramways at Mines under the Coal Mines Regulation Act for the years 1896–1905.	398
X.	Table showing the Number of Candidates Examined and of Candidates who passed at the Examinations for Certificates of Competency as Managers and Under-Managers of Coal Mines held by Boards of Examination during the five years ended 1905.	399
XI.	Report by German Commission on the Inspection of Mines by Workmen in Great Britain, France, and Belgium.	400
XII.	Typical "Apologies" posted up in Collieries in the Southern District -	402
XIII.	Specimen Reports made by Miners in the Southern District under General Rule 38.	402
XIV.	Report on the Charter Master System in South Staffordshire and East Worcestershire.	404
XV	Report on a Recent Visit to the Westphalian Coalfield, by Dr. J. S. Haldane, F.R.S., Mr. Henry Hall, I.S.O., and Mr. W. N. Atkinson.	406

Digitized by Google

APPENDIX I.

RETURN showing the Growth of the Inspectorate as compared with the Growth of the Mining Industry.

Year.	Number of Mines.	Number of Persons Employed (under and above ground).	Number of Fatal Accidents.	Number of Inspectors.		
				Chief.	Assistants.	Total.
1865	3,247*	315,451	837	12	—	12
1875	5,919†	593,918	1,037	14	12	26
1885	4,932†	561,676	866	14	19	33
1895‡	4,236†	733,657	914	13	26	39
1905‡	3,940†	887,524	1,006	12	26	38

* Coal Mines only.

† Coal and Metalliferous Mines.

‡ { In 1895 there were under the Inspection of the Mines Inspectors 8,062 quarries at work, employing 104,625 persons, at which 102 fatal accidents occurred.
{ In 1905 „ „ „ 7,513 „ „ 94,819 „ 97 „

Digitized by Google

APPENDIX II.

RETURN showing for each Mines Inspection District the Number of Inspectors, the Number of Mines and Quarries at Work, and the Number of Fatal Accidents for the year 1905.

No. of District.	Names of Inspection Districts.	Names and Addresses of Inspectors. (Corrected to 1st July, 1906.)	Names and Addresses of Assistant Inspectors.	Coal Mines Regulation Act.		Metalliferous Mines Act.		Quarries Act.		Fatal Accidents.			
				Number of Mines.	Persons employed (under and above ground).	Number of Mines.	Persons employed (under and above ground).	Number of Quarries.	Persons employed (inside and outside).	At Mines under the Coal Mines Regulation Act.	At Mines under the Metalliferous Mines Act.	At Quarries under the Quarries Act.	TOTAL.
1	East Scotland District, comprising Aberdeen, Banff, Berwick, Caithness, Clackmannan, Edinburgh, Elgin, Fife, Forfar, Haddington, Inverness, Kincardine, Kinross, Linlithgow, Nairn, Orkney and Shetland, Peebles, Perth, Ross and Cromarty, Roxburgh, Selkirk, Sutherland, East Stirling,* and East Lanark.†	R. McLaren, Esq., 19, Morningside Park, Edinburgh.	E. B. Whalley, Esq., 4, Kirkbrae Road, Liberton, Edinburgh. J. M. Carey, Esq., 7, Liberton Brae, Liberton, Edinburgh.	274	57,064	20	546	787	6,756	65	—	7	72
2	West Scotland District, comprising Argyll, Ayr, Bute, Dumbarton, Dumfries, Kirkcudbright, Renfrew, Wigtown, West Stirling, and West Lanark.	J. M. Ronaldson, Esq., 44, Athole Gardens, Glasgow.	T. H. Mottram, Esq., 6, Kelvinside Gardens, North, Glasgow. Andrew Pearson, Esq., The Grove, Rutherglen, Glasgow.	252	57,230	12	428	340	5,431	74	1	5	80
3	Newcastle District, comprising Northumberland, Cumberland, North Durham, the detached part of North Lancashire, and the Isle of Man.	J. B. Atkinson, Esq., 2, Devonshire Terrace, Newcastle-on-Tyne.	W. Leck, Esq., Cleator Moor. A. D. Nicholson, Esq., 2, Graingerville, Newcastle-on-Tyne. H. A. Abbott, Esq., 1, Highbury, West Jesmond, Newcastle-on-Tyne.	244	93,227	99	7,581	389	4,846	85	10	5	100
4	Durham District, comprising South Durham, Westmorland, and North Riding of Yorkshire.	R. Donald Bain, Esq., Durham.	H. Johnstone, Esq., 8, Church Street, Durham. H. Walker, Esq., 9, Victoria Terrace, Durham.	248	93,619	42	1,001	226	3,347	87	2	1	90
5	York and Lincoln District, comprising East and West Ridings of Yorkshire and Lincolnshire.	W. Walker, Esq., Doncaster.	J. Mellors, Esq., Outwood, near Wakefield. J. R. R. Wilson, Esq., 182, Chapeltown Road, Leeds.	375	112,711	36	870	715	9,577	123	2	10	135

Digitized by Google

6	Manchester and Ireland District,¶ comprising part of Lancashire (namely, so much of the County as is not included in Nos. 3 and 7 Districts), and Ireland.	John Gerrard, Esq., Worsley, Manchester.	W. Saint, Esq., Kersal Bank, Higher Broughton, Manchester. G. B. Harrison, Esq., 278, Worsley Road, Swinton, Manchester.	231	45,895	61	1,368	789	8,840	28		10	41
7	Liverpool and North Wales District, comprising South West Lancashire,‡ Chester, Flint, Denbigh, Montgomery, Merioneth, Carnarvon and Anglesey.	Henry Hall, Esq., I.S.O., Rainhill, Lancashire.	D. H. F. Matthews, Esq., Hoole, Chester. G. J. Williams, Esq., Coed Menai, Bangor. O. R. Jones, Esq, 5, Spring Gardens, Chester.	225	61,559	125	6,992	427	14,672	71	6	18	95
8	Midland District, comprising Derby, Nottingham, Leicester, Warwick, Northampton, Rutland, Huntingdon, Cambridge, Oxford, Berkshire, Buckingham, Bedford, Hertford and Middlesex.	A. H. Stokes, Esq., Green Hill, Derby.	W. H. Hepplewhite, Esq., St. Ann's Hill, Nottingham. H. R. Hewitt, Esq., Breedon Hill Road, Derby.	300	103,482	53	864	966	15,379	85	—	13	98
9	Stafford District, comprising Stafford, Salop, Worcester, Hereford, Norfolk, Suffolk and Essex.	W. N. Atkinson, Esq., Barlaston, Stoke-on-Trent.	H. R. Makepeace, Esq., 12, Compton Road, Wolverhampton. F. H. Wynne, Esq., 6, Brunswick Street, Newcastle, Staffs.	447	54,845	21	619	640	5,427	63	2	4	69
10	Cardiff District, comprising East Glamorgan§ and East Brecon,‖ Radnor and Cardigan.	F. A. Gray, Esq., 7, Victoria Square, Penarth, near Cardiff.	J. Dyer Lewis, Esq., 183, Richmond Road Roath, Cardiff. F. J. Trump, Esq., Morfa, Stanwell Road, Penarth, near Cardiff.	216	86,881	19	440	227	2,260	134	—	5	139
11	Swansea District, comprising West Glamorgan and West Brecon, Carmarthen and Pembroke.	J. T. Robson, Esq., 80, Walter Road, Swansea.	F. N. White, Esq., 12, St. James' Gardens, Swansea. R. G. M. Pritchard, Esq., Bryn-tirion, Bridgend.	255	37,500	3	46	228	1,668	64	—	4	68
12	Southern District, comprising Monmouth, Gloucester, Somerset, Devon, Cornwall, Dorset, Wilts, Hants, London, Surrey, Sussex and Kent.¶	J. S. Martin, Esq., I.S.O., 16, Durdham Park, Bristol.	Charles L. Robinson, Esq., Glen Bank, Woodland Park, Newport, Mon. T. Greenland Davies Esq., Colessie, Hampstead Road, Brislington, Bristol.	185	54,360	197	8,396	1,779	16,616	84	17	15	116

* Including the Parishes of Airth, Larbert, Falkirk and Slamannan, and all Parishes to the east thereof.
† Including the Parishes of New Monkland, Shotts, Dalziel, Cambusnethan, Carluke, Lanark, Carmichael, Douglas, and Crawfordjohn, and all Parishes to the east thereof.
‡ Including the Parishes of Hesketh-with-Becconsall, Tarleton, Croston, Eccleston, Standish, Wigan, Winwick and Warrington, and all Parishes to the west thereof.
§ Including the Parishes of Aberdare, Ystradyfodwg, Llantrisant, Coychurch Higher, Pencoed, Coychurch Lower, Llan-gan, Colwinston, Llandow and St. Donats and all Parishes to the east thereof.
‖ Including the Parishes Llyswen, Llandefalle, Trawscoed, Llanfilo, Llan-y-wern, Llanhamlach, Llanfrynach, Cantref, Penderyn, and all Parishes to the east thereof.
¶ The Collieries at Dover are attached to No. 6 District temporarily.

Digitized by Google

RETURN showing for each Mines Inspection District the Death Rate
Act, for the

Year.	East Scotland.			West Scotland.			Newcastle.			Durham.			Yorkshire and Lincolnshire.			N. & E. Lancs. and Ireland.		
	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.
1896 - - -	1·43	2·24	1·58	1·56	·83	1·42	1·21	·42	1·05	1·47	·58	1·26	1·76	1·08	1·63	1·33	·64	1·19
1897 - - -	1·84	1·46	1·77	1·51	·82	1·37	1·29	·41	1·11	1·56	·58	1·33	1·18	·66	1·08	1·72	·50	1·48
1898 - - -	1·27	2·22	1·43	2·19	1·73	2·10	·97	·86	·95	1·38	·79	1·24	1·09	·85	1·04	1·95	·38	1·64
1899 - - -	1·67	1·38	1·62	1·45	1·28	1·42	1·09	1·05	1·08	1·61	·55	1·35	·84	·89	·85	1·60	·50	1·38
1900 - - -	1·34	·96	1·27	2·05	·36	1·74	1·38	·88	1·28	1·28	·48	1·08	·96	·91	·95	1·34	·24	1·12
Average - -	*1·51*	*1·63*	*1·53*	*1·76*	*·99*	*1·61*	*1·19*	*·74*	*1·10*	*1·46*	*·59*	*1·25*	*1·16*	*·88*	*1·10*	*1·58*	*·45*	*1·36*

Year.	East Scotland.			West Scotland.			Newcastle.			Durham.			York and Lincoln.			N. & E. Lancs. and Ireland.		
	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.
1901*- - -	1·82	1 96	1·85	1·36	1·06	1·31	·99	·92	·98	1·13	·98	1·10	1·08	·90	1·04	1·43	·47	1·24
1902 - - -	2·06	·96	1·86	1·42	1·33	1·41	·99	·86	·97	1·22	·33	1·01	1·04	1·11	1·06	·90	·67	·85
1903 - - -	1·48	1·94	1·57	1·82	·82	1·63	·92	·66	·87	1·23	1·08	1·20	1·23	·92	1·16	1·38	·76	1·26
1904 - -	1·26	1·49	1·30	1·71	1·03	1·59	1·09	·77	1·03	1·31	·71	1·17	1·23	·94	1·17	1·26	·42	1·11
1905 - - -	1·22	·77	1·14	1·44	·94	1·35	1·01	·86	·98	1·04	·60	·94	1·14	·94	1·10	·71	·21	·61
Average - -	*1·56*	*1·41*	*1·53*	*1·55*	*1·03*	*1·46*	*1·00*	*·81*	*·96*	*1·19*	*·74*	*1·08*	*1·15*	*·96*	*1·11*	*1·14*	*·50*	*1·01*

* In 1901 some of the inspection

Digitized by Google

per 1,000 Persons employed at Mines under the Coal Mines Regulation
Years 1896–1905

Liverpool.			Midland.			North Staffordshire.			South Staffordshire.			South Western.			South Wales.			Total.		
Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.
1·64	·49	1·42	·77	·82	·78	1·77	1·69	1·75	1·85	·29	1·45	1·17	·58	1·08	2·93	1·55	2 73	1·62	·91	1·48
1·73	·96	1·58	·79	·41	·71	1·44	·68	1·26	1·56	·45	1·27	1·47	·71	1·35	2·03	1·16	1·90	1·49	·71	1·34
1·70	·68	1·51	1·50	·41	1·28	1·26	·82	1·23	1·31	1·02	1·23	1·04	1·12	1·05	1·31	1·03	1·26	1·37	·92	1·28
1·40	·67	1·26	·92	·57	·85	1·44	·63	1·25	1·64	·28	1·28	1·09	·80	1·03	2·03	·85	1·85	1·37	·79	1·26
1·87	·91	1·68	·98	·16	·81	1·98	·61	1·66	2·12	·95	1·82	1·31	·48	1·18	1·79	1·46	1 73	1·44	·73	1·30
1·67	*·74*	*1·49*	*·99*	*·47*	*·88*	*1·61*	*·88*	*1·43*	*1·70*	*·60*	*1·42*	*1·22*	*·73*	*1·14*	*2·01*	*1·21*	*1·88*	*1·46*	*·81*	*1·33*

Liverpool. and N. Wales.			Midland.			Stafford.			Cardiff.			Swansea.			Southern.			Total.		
Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.	Under ground.	Above ground.	Total.
1·62	·65	1·43	·83	·51	·76	1·74	·88	1·53	3·09	1·21	2·82	1·76	1·61	1·73	1·13	1·06	1·12	1·46	·95	1·36
1·54	·73	1·38	·97	·44	·86	1·56	·43	1·29	1·99	·95	1·85	1·64	·61	1·45	1·61	·26	1·41	1·37	·72	1·24
1·45	·83	1·33	·84	·57	·78	1·74	·88	1·54	1·84	1·46	1·79	1·34	1·20	1·32	1·52	·65	1·40	1·35	·94	1·27
1·34	·83	1·24	·92	·53	·84	1·56	·23	1·25	1·59	1·64	1·60	1·77	1·07	1·65	1·58	1·15	1·52	1·34	·85	1·24
1·50	·50	1·30	·95	·52	·86	1·70	·39	1·24	3·71	·89	3 30	2·10	1·68	2·03	1·62	1·38	1·58	1·49	·75	1·35
1·49	*·71*	*1·34*	*·90*	*·51*	*·82*	*1·62*	*·57*	*1·37*	*2·45*	*1·23*	*2·27*	*1·72*	*1·23*	*1·64*	*1·50*	*·91*	*1·41*	*1·40*	*·84*	*1·29*

districts were re-arranged.

Digitized by Google

APPENDIX IV.

PROSECUTIONS.

TABLE I.

PROSECUTIONS of Owners, Agents, Managers, and Under-Managers for Offences under the Coal and Metalliferous Mines Regulation Acts for each year during the period 1896–1905.

Year.	Prosecutions.*	Convictions.	Cases withdrawn or not proven.	Cases dismissed.	Total Amount of Fines and Costs imposed.	Average Amount of Fines and Costs imposed.
					£ s. d.	£ s. d.
1896 - - - -	74 (*22*)	60	5	9	245 12 9	4 1 11
1897 - - - -	95 (*23*)	76	7	12	200 10 2	2 12 9
1898 - - -	110 (*30*)	67	20	23	158 17 6	2 7 5
1899 - - - -	63 (*28*)	52	2	9	187 7 10½	3 12 1
1900 - - - -	65 (*23*)	50	5	10	216 1 2	4 6 5
1901 - - - -	77 (*11*)	50	17	10	363 12 2	7 5 5
1902 - - - -	71 (*33*)	52	6	13	175 9 7	3 7 6
1903 - - - -	50 (*24*)	39	5	6	139 4 0	3 11 5
1904 - - -	35 (*17*)	25	4	6	66 1 10	2 12 10
1905 - - -	72 (*32*)	43	22	7	183 18 6	4 5 7
Total - - -	712 (*243*)	514	93†	105‡	1,936 15 6½	3 15 4

* The figures without brackets represent the number of offences, whilst those within denote the number of firms prosecuted.

† Forty-three cases were withdrawn on payment of costs.

‡ Seven cases were dismissed on payment of costs.

Digitized by Google

TABLE II.

PROSECUTIONS of Owners, Agents, Managers, and Under-Managers for Offences under the Coal and Metalliferous Mines Regulation Acts, during the years 1896 to 1905. Classified according to the nature of the offence.

Nature of Offence.	Prosecutions. (a)	Convictions.	Cases withdrawn or not proven.	Cases dismissed.	Total Amount of Fines and Costs imposed.	Average Amount of Fines and Costs imposed
					£ s. d.	£ s. d.
1. Employing boys, girls, or women at illegal hours or times of employment.	14	9*	4†	1	21 1 6	2 6 10
2. Paying wages at public-houses	–	–	–	–	—	—
3. Offences connected with check-weighers	1	1	–	–	5 10 6	5 10 6
4. Neglecting rules as to registers, returns, notices, plans:						
Not keeping up registers	9	7	–	2‡	8 9 8	1 4 3
Not posting abstracts, notices, etc.	23	21	2	–	26 4 8	1 5 0
Not sending annual returns	18	16	2	–	38 11 8	2 8 3
Not sending statutory notices	28	23	3§	2	86 16 4‖	3 15 6
Not keeping up plans	19	18	–	1	45 0 7½	2 10 0
Not sending plans of abandoned mines	5	3	1§	1	11 9 6¶	3 16 6
5. Contraventions of general and special rules:						
Inadequate ventilation	104	72	4**	28	373 11 0	5 3 9
Not keeping up report books	59	41	10††	8	59 18 10	1 9 3
Breaches of rules about safety lamps	27	17	9‡‡	1	86 18 0	5 2 3
Do. do. explosives	33	25	2§§	6	68 8 1	2 14 9
Not providing proper signals	18	14	2	2	17 0 10	1 4 4
do. do. manholes	30	17	9‖‖	4¶¶	86 12 8	5 1 11
Not securing roof and sides	5	5	–	–	51 6 0	10 5 2
Not fencing entrances to shafts	18	15	–	3	44 9 9	2 19 4
Not fencing machinery	25	20	3	2	43 8 2	2 3 5
Miscellaneous breaches of the general or special rules.	176	120	25†††	27‡‡‡	452 8 1	3 15 5
6. Not fencing shafts at abandoned mines	15	13	1	1§§§	53 14 8	4 2 8
7. Offences against Explosives Order	31	17	8§§	6	95 12 6	5 12 6
8. Other offences	54	40	4***	10‖‖‖	260 2 6	6 10 1
Total	712	514	93	105	1,936 15 6½	3 15 4

* In two cases defendants were admonished.
† Withdrawn on payment of costs.
‡ Dismissed on payment of costs.
§ In one case the summons was withdrawn on performance of the legal obligation and the payment of costs.
‖ The costs in one case are included under the heading "Not sending plans of abandoned mines."
¶ Including the costs of one case under the heading "Not sending statutory notices."
** Two cases were withdrawn on payment of costs.
†† Four cases do. do.
‡‡ Three cases do. do.
§§ One case was do. do.
‖‖ Five cases were do. do.
¶¶ One case was dismissed on payment of costs.
*** Two defendants were ordered to pay costs.
††† Nineteen cases were withdrawn on payment of costs.
‡‡‡ Two cases were dismissed on payment of costs; and in another decision was reversed on appeal, and appellant allowed ten guineas expenses.
§§§ Taken to a Higher Court.
‖‖‖ Two cases were dismissed on payment of costs.
(a) The figures in this column represent the number of offences.

Digitized by Google

TABLE III

TABLE showing the number of Prosecutions and Convictions of Owners, Agents, Managers and Under-Managers of Mines for Offences under the Coal and Metalliferous Mines Regulation Acts, according to Inspection Districts, during the Years 1896–1905.

Year	East Scotland.		West Scotland.		Newcastle.		Durham.		Yorkshire and Lincolnshire.		N. & E. Lancs and Ireland.		Liverpool.		Midland.		North Wales.		North Staffordshire.		South Staffordshire.		South Western.		South Wales.		Total.	
	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.
1896	2	1	11	9	8	8	--	—	1	1	—	—	6	4	3	2	14	9	3	2	16	15	1	1	9	8	74	60
1897	3	2	—	—	9	3	2	2	—	—	2	2	4	3	9	9	30	26	—	—	15	15	11	11	10	3	95	76
1898	4	4	3	2	3	3	—	—	—	—	9	9	4	1	4	2	13	13	—	—	14	8	53	24	3	1	110	67
1899	5	4	5	3	1	1	2	1	—	—	3	2	4	2	3	3	17	14	3	3	13	13	2	2	5	4	63	52
1900	5	2	8	8	1	1	2	1	2	2	--	—	8	4	2	—	5	3	4	2	18	17	—	—	10	10	65	50

Year.	East Scotland.		West Scotland.		Newcastle.		Durham.		York and Lincoln.		N. & E. Lancs and Ireland.		Liverpool and N. Wales.		Midland.		Stafford.		Cardiff.		Swansea.		Southern.		Total.	
	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.
1901* - - - -	3	3	4	3	9	4	—	—	—	—	1	1	3	3	10	7	29	15	15	11	—	—	3	3	77	50
1902 - - - -	2	2	4	4	—	—	5	1	8	7	5	5	6	6	4	—	10	9	—	--	—	—	27	18	71	52
1903 - - - -	4	4	7	7	3	2	—	—	8	6	—	—	3	2	—	--	10	6	11	9	--	—	4	3	50	39
1904 - - -	4	2	2	2	—	—	2	2	4	1	2	1	8	8	—	—	10	7	2	1	—	—	1	1	35	25
1905 - - - -	5	5	1	1	6	2	--	—	7	6	6	2	4	4	—	—	7	7	5	3	2	—	29	13	72	43

* In 1901 some of the Inspection Districts were re-arranged.

Digitized by Google

TABLE IV.

PROSECUTIONS OF UNDER-OFFICIALS AND WORKMEN for Offences under the Coal and Metalliferous Mines Regulation Acts in each Inspection District during the years 1901–1905.

Inspection District.	1901.		1902.		1903.		1904.		1905.		Total.	
	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.
1. East Scotland - -	58	48	60	56	33	31	43	39	112	98	*306*	*272*
2. West Scotland - -	77	69	68	60	57	51	82	75	102	101	*386*	*356*
3. Newcastle - - -	84	84	51	48	81	78	93	90	79	77	*388*	*377*
4. Durham - - -	124	122	102	102	98	97	121	118	69	66	*514*	*505*
5. York & Lincoln -	89	83	144	136	141	138	206	204	205	197	*785*	*758*
6. Manchester & Ireland	42	40	38	38	75	74	38	38	36	34	*229*	*224*
7. Liverpool & N. Wales	45	45	60	60	60	59	59	57	23	23	*247*	*244*
8. Midland - - -	64	63	89	89	60	57	50	48	38	38	*301*	*295*
9. Stafford - - -	83	78	47	45	52	47	67	64	44	44	*293*	*278*
10. Cardiff - - -	155	152	95	93	108	97	99	97	124	124	*581*	*563*
11. Swansea - - -	67	58	42	42	30	30	29	29	44	44	*212*	*203*
12. Southern - - -	68	66	65	60	78	70	59	59	77	71	*347*	*326*
Total - - -	956	908	861	829	873	829	946	918	953	917	*4,589*	*4,401*

Digitized by Google

TABLE V.

PROSECUTION OF UNDER-OFFICIALS AND WORKMEN for Offences under the Coal and Metalliferous Mines Regulation Acts during the five years 1901–1905, Classified according to the Nature of the Offence.

Nature of Offence.	1901.		1902.		1903.		1904.		1905.	
	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions
1. Obstructing airways or interfering with the ventilation	5	5	8	8	12	11	9	9	16	16
2. Contraventions of rules about safety lamps:										
Unlocking a safety lamp or having a contrivance for unlocking	29	26	11	11	17	17	14	14	19	19
Using a damaged safety lamp	3	3	9	8	4	4	5	5	2	2
Having a safety lamp near the swing of the pick	6	6	7	7	7	6	8	8	3	3
Sleeping while in charge of a safety lamp	45	45	26	25	15	15	25	25	27	25
Miscellaneous	35	34	33	27	30	30	31	30	46	45
3. Contraventions of rules about matches and smoking:										
Having matches in his possession in the mine	122	119	97	92	81	74	95	94	119	117
Having a pipe in his possession or smoking in the mine	104	101	55	54	66	65	53	52	61	60
Having both pipe and matches in his possession in the mine	4	4	13	13	25	21	4	4	7	7
4. Contraventions of rules about explosives:										
Illegal thawing	—	—	—	—	—	—	—	—	—	—
Taking loose powder into the mine	6	6	10	10	8	8	13	13	8	8
Using insecure canisters	2	2	2	2	1	1	—	—	31	30
Unramming shots	23	20	10	9	14	14	9	8	8	8
Miscellaneous	52	49	57	55	29	29	58	54	19	19
5. Contraventions of rules about timbering:										
Neglecting to set sprags	52	49	64	63	58	54	67	66	88	86
Neglecting to set props	7	7	16	15	35	34	42	39	51	50
Miscellaneous	2	1	5	4	5	3	5	4	5	5
6. Contraventions of rules about trams or tubs, or inclined and engine planes:										
Riding or allowing riding on trams and tubs	149	141	113	113	102	102	130	129	130	122
Drawing in front of tubs	2	2	1	1	1	1	10	9	6	5
Miscellaneous	23	23	47	46	32	29	64	62	43	41
7. Disobeying orders	81	81	37	36	79	72	34	33	28	24
8. Cruelty to animals	21	18	13	13	23	21	23	23	16	15
9. Being about the mine in a state of intoxication	27	27	31	31	31	30	20	20	21	21
10. Miscellaneous	156	139	196	186	198	188	227	217	199	189
Total	956	908	861	829	873	829	946	918	953	917

Digitized by Google

TABLE VI.

PROSECUTIONS of Owners, Agents, and Managers for Inadequate Ventilation under the Coal and Metalliferous Mines Regulation Acts, during the Years 1896–1905.

Year.	Prosecutions.	Convictions.	Cases withdrawn or not proven.	Cases dismissed.	Total amount of fines and costs imposed.
					£ s. d.
1896	8	5	—	3	30 19 0
1897	18	10	1	7	33 6 0
1898	24	17	1	6	52 9 0
1899	6	3	2*	1	16 16 9
1900	3	2	—	1	4 2 6
1901	15	12	—	3	82 13 8
1902	16	12	—	4	76 8 1
1903	6	5	—	1	15 5 0
1904	3	3	—	—	7 11 0
1905	5	3	—	2	54 0 0
Total	104	72	4	28	373 11 0

* Withdrawn on payment of costs.

TABLE VII.

LIST OF PROSECUTIONS of Workmen in each Inspection District for Contraventions of Rules about Matches and Smoking under the Coal and Metalliferous Mines Regulation Acts during the Years 1903, 1904, and 1905.

District.	Nature of Offence.									Total.		
	Having Matches in his Possession in the Mine.			Having a Pipe in his Possession, or Smoking in the Mine.			Having both Pipe and Matches in his Possession in the Mine.					
	1903	1904	1905	1903	1904	1905	1903	1904	1905	1903	1904	1905
East Scotland	2	2	12	4	—	1	—	1	1	6	3	14
West Scotland	9	7	13	6	7	9	1	1	2	16	15	24
Newcastle	7	7	7	2	4	4	—	1	3	9	12	14
Durham	6	1	4	—	—	1	1	—	—	7	1	5
York and Lincoln	6	22	20	1	4	5	—	—	—	7	26	25
Manchester and Ireland	3	3	1	6	2	1	1	—	—	10	5	2
Liverpool and N. Wales	8	2	—	9	1	—	—	—	—	17	3	—
Midland	8	1	7	2	5	4	3	1	—	13	7	11
Stafford	3	8	1	7	8	—	1	—	1	11	16	2
Cardiff	20	30	29	19	15	23	15	—	—	54	45	52
Swansea	5	1	6	4	2	4	—	—	—	9	3	10
Southern	4	11	19	6	5	9	3	—	—	13	16	28
Total	81	95	119	66	53	61	25	4	7	172	152	187

Digitized by Google

APPENDIX V.—

RETURN showing for each Mines Inspection District the Number of Separate Explosions of the Coal Mines Regulation

Year.	East Scotland.				West Scotland.				Newcastle.				Durham.				Yorkshire and Lincolnshire.				N. & E. Lancs. and Ireland.			
	Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.	
	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.
1896 - - -	3	4	25	30	5	5	39	58	3	4	4	8	1	20	7	7	2	64	3	8	—	—	2	2
1897 - - -	3	4	28	39	2	2	39	55	—	—	13	15	—	—	2	2	1	3	8	11	—	—	—	—
1898 - - -	1	3	28	35	5	14	41	71	1	1	10	17	1	2	7	9	2	3	7	11	1	3	3	3
1899 - - -	5	7	31	44	8	9	27	45	2	2	8	15	2	7	5	14	1	2	3	9	—	—	1	1
1900 - - -	6	8	30	43	8	14	27	42	2	5	6	19	—	—	7	13	1	1	8	9	—	—	—	—
Total - -	18	26	142	191	28	44	173	271	8	12	41	74	4	29	28	45	7	73	29	48	1	3	6	6

Year.	East Scotland.				West Scotland.				Newcastle.				Durham.				York and Lincoln.				N. & E. Lancs. and Ireland.			
	Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.	
	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.
1901* - - -	—	—	29	46	5	7	37	58	—	—	8	12	2	2	1	5	1	1	10	11	1	4	3	14
1902 - - -	4	9	18	23	3	4	45	58	2	4	8	13	1	1	3	6	2	2	5	7	—	—	—	—
1903 - - -	4	5	22	33	2	3	47	66	1	1	7	16	—	—	8	9	—	—	9	13	—	—	—	—
1904 - - -	2	2	21	26	6	7	42	62	3	4	7	30	—	—	6	7	2	2	8	15	—	—	3	6
1905 - - -	1	1	19	29	1	1	48	64	2	3	9	11	—	—	4	4	2	2	9	23	—	—	—	—
Total - -	11	17	109	157	17	22	219	308	8	12	39	82	3	3	22	31	7	7	41	69	1	4	6	20

* In 1901 some of the Inspection

Digitized by Google

TABLE I.

Firedamp or Coal Dust, and the Number of Persons Killed and Injured thereby in Mines under Act, for the years 1896–1905.

Liverpool.				Midland.				North Staffordshire.				South Staffordshire.				South Western.				South Wales.				Total.			
Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.	
Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.
—	—	2	2	—	—	4	2	—	—	3	4	3	3	9	11	—	—	2	3		73	29	53	25	173	129	188
—	—	1	3	1	1	4	9	—	—	2	2	2	2	6	7	1	1	—	—	2	6	33	42	12	19	136	185
—	—	5	6	—	—	4	4	—	—	2	2	1	1	7	16	—	—	4	5	—	—	32	44	12	27	150	223
1	2	2	4	—	—	5	4	—	—	2	3	2	5	10	16	—	—	2	2	2	20	28	37	23	54	124	194
1	8	2	10	1	2	5	5	—	—	5	9	3	3	10	12	—	—	2	2	3	4	23	41	25	45	125	205
2	10	12	25	2	3	22	24	—	—	14	20	11	14	42	62	1	1	10	12	15	103	145	217	97	318	664	995

Liverpool and N. Wales.				Midland.				Stafford.				Cardiff.				Swansea.				Southern.				Total.			
Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.	
Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.	Explosions.	Deaths.	Explosions.	Injured.
1	4	—	—	—	—	6	9	3	8	12	14	5	95	5	17	2	2	11	25	1	2	2	9	21	125	124	220
4	14	2	15	—	—	11	11	2	2	11	15	2	9	5	7	2	2	24	32	1	16	—	18	23	63	132	205
—	—	3	5	—	—	4	4	1	1	8	10	2	2	2	6	1	2	22	29	—	—	2	2	11	14	134	193
—	—	1	1	1	2	4	5	3	5	9	15	—	—	4	5	—	—	26	40	—	—	4	4	17	22	135	216
—	—	2	4	1	3	3	13	2	2	5	11	3	154	2	22	2	12	21	37	—	—	1	1	14	178	123	219
5	18	8	25	2	5	28	42	11	18	45	65	12	260	18	57	7	18	104	163	2	18	9	34	86	402	648	1053

districts were re-arranged.

Digitized by Google

TABLE

TABLE showing the Number of Explosions of Fire-damp or Coal Dust, classified according to cause, and the for the years

	CAUSE.	1896.				1897.				1898.				1899.			
		No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.	No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.	No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.	No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.
I. Lighting. Safety Lamps.	1. Naked lights	21	87	119	164	6	6	125	163	7	16	139	191	13	36	116	165
	2. Matches or smoking	—	—	—	—	1	1	—	—	1	1	—	4	2	2	—	8
	3. Illegally opened	—	—	—	—	2	6	2	4	—	—	—	—	—	—	1	8
	4. In defective condition	—	—	4	4	—	—	1	1	—	—	1	2	—	—	—	—
	5. Injured during work	—	—	—	—	—	—	—	—	—	—	—	—	2	3	1	2
	6. Gauze becoming red hot or displaced...	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—
	7. Oil or soot on gauze taking fire ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	8. Flame driven through gauze by ventilating current	2	9	1	4	—	—	—	—	—	—	—	—	—	—	—	—
	9. Flame driven through gauze by improper handling	—	—	—	—	—	—	—	—	—	—	2	7	—	—	—	
	9a. Precise cause unknown	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
II. Shot-firing.	10. Flame used for igniting fuse	—	—	—	—	—	—	1	3	1	3	—		1	2	—	—
	11. Flame or sparks from fuse or igniter...	—	—	2	7	2	3	2	7	1	2	6	12	1	1	1	3
	12. Flame of explosive	2	77	3	9	—	—	3	4	2	5	1	4	2	7	4	17
	13. Precise cause unknown	—	—	—	—	1	3	—	—	—	—	—	—	—	—	—	—
III. Underground fires.	14. Ventilating furnaces	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	15. Accidental or spontaneous ignition of mineral, timber, or other material ...	—	—	—	—	—	—	—	—	—	—	—	—	1	2	—	2
IV. Miscellaneous or unknown		—	—	—	—	—	—	1	2	—	—	1	2	1	1	1	3
Totals		25	173	129	188	12	19	136	185	12	27	150	223	23	54	124	194

* Including persons injured by Explosions which proved fatal to others.

Digitized by Google

II.

Number of Persons Killed and Injured thereby in Mines under the Coal Mines Regulation Act 1896—1905.

1900.				1901.				1902.				1903.				1904.				1905.				Total for 10 years.			
No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.	No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.	No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.	No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.	No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.	No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.	No. of Fatal Accidents.	No. of Deaths.	No. of Non-fatal Accidents.	*No. of Persons injured.
21	34	106	166	12	22	108	174	16	24	124	159	10	13	114	155	7	7	121	167	9	13	106	160	122	258	1178	1664
—	—	1	1	1	2	—	1	1	1	—	—	—	—	1	4	2	2	—	1	1	11	1	1	9	20	3	13
—	—	—	—	1	1	1	1	1	8	—	—	—	—	1	1	—	—	—	—	—	—	1	9	4	15	6	16
1	3	2	4	—	—	2	3	—	—	1	1	—	—	2	5	1	1	2	5	—	—	1	1	2	4	16	26
—	—	—	—	—	—	1	1	—	—	—	—	1	1	—	3	2	5	2	4	—	—	—	—	5	9	4	10
—	—	—	—	1	1	1	9	—	—	—	—	—	—	—	—	—	—	—	—	1	33	—	14	2	34	2	24
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	9	1	4
—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	8
—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—	—	—	—	2	2
—	—	1	1	—	—	1	1	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—	—	2	5	5	8
1	1	4	13	—	—	6	9	—	—	2	3	—	—	3	3	1	1	5	10	—	—	2	5	6	8	33	72
1	1	8	12	2	12	2	9	2	3	5	21	—	—	7	11	2	2	2	9	3	121	6	16	16	228	41	112
—	—	1	4	1	1	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	4	1	10
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	2	4	1	4	—	—	—	—	—	—	—	—	—	—	1	2	1	15	—	—	1	1	3	8	4	22
1	6	—	—	2	82	1	5	3	27	—	21	—	—	2	7	1	2	2	5	—	—	5	12	8	118	13	57
25	45	125	205	21	125	124	220	23	63	132	205	11	14	134	193	17	22	135	216	14	178	123	219	183	720	1312	2048

Digitized by Google

NOTE:—The letters at the head of the Tables in this Appendix denote that the various tables marked (**A**) relate to number of deaths; (**B**) Death rates per 1,000 persons employed; (**C**) Death rates per 1,000,000 tons of mineral raised.

APPENDIX VI.

(**A**)

TABLE I.

TOTAL Number of Deaths from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act for the Years 1896-1905.

——	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	Total.
Deaths from accidents from falls of roof and side											
(*a*) At the working face - - -	291	335	286	307	324	316	319	378	324	315	3,195
(*b*) On roads while repairing or enlarging - - - - - -	81	88	81	79	96	99	72	109	95	118	918
(*c*) On roads while otherwise working or passing - - - - -	52	57	64	51	73	67	59	75	80	81	659
(*d*) In shafts - - - - - -	—	—	—	—	—	—	2	5	13	1	21
Total - - - - -	424	480	431	437	493	482	452	567	512	515	4,793

Digitized by Google

TABLE II.

(A) TOTAL DEATHS from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act for the years 1896—1905 *for each District.*

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	33	31	37	34	39	24	46	32	19	21	29	79	424
1897	41	31	47	51	51	28	47	32	14	15	39	84	480
1898	28	36	22	49	49	41	52	40	17	14	24	59	431
1899	36	22	40	57	36	30	36	42	16	17	25	80	437
1900	33	33	47	44	50	27	51	44	27	26	33	78	493
Total -	171	153	193	235	225	150	232	190	93	93	150	380	2,265

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	40	31	41	39	48	39	47	40	50	52	27	27	482
1902	39	35	34	41	47	23	36	46	3	67	27	21	452
1903	34	59	37	50	69	41	44	46	44	80	16	47	567
1904	29	43	36	55	64	32	40	44	37	64	27	41	512
1905	38	36	43	41	72	15	49	50	36	61	34	40	515
Total -	180	204	191	226	300	150	216	226	203	325	131	176	2,528

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

(A)

TABLE III.

DEATHS from Accidents from Falls of Ground (*at the Working Face*) in Mines under the Coal Mines Regulation Act for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire. and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	30	23	28	28	27	19	21	23	14	11	21	46	291
1897	35	22	34	37	37	23	29	17	12	11	22	56	335
1898	25	29	16	29	31	23	25	29	11	13	14	41	286
1899	30	16	34	47	20	23	17	22	13	13	20	52	307
1900	24	25	38	35	31	17	25	28	20	19	23	39	324
Total -	144	115	150	176	146	105	117	119	70	67	100	234	1,543

Year.	East Scotland.	West Scotland.	Newcastle	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	32	26	32	30	30	23	25	24	32	30	12	20	316
1902	31	30	22	29	36	14	20	31	5	41	24	16	319
1903	27	42	28	33	47	24	16	34	36	49	9	33	378
1904	19	35	33	31	38	17	18	32	24	34	19	24	324
1905	26	24	30	31	39	12	22	34	25	32	24	16	315
Total -	135	157	145	154	190	90	101	155	142	186	88	109	1,652

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE IV.

DEATHS from Accidents from Falls of Ground (*on Roads while Repairing or Enlarging*) in Mines under the Coal Mines Regulation Act for the Years 1896–1901.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire. and Lincolnshire.	N. and E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	3	2	5	4	4	3	17	7	5	5	4	22	81
1897	3	5	7	5	10	2	11	14	2	1	7	21	88
1898	2	3	4	13	11	9	14	7	3	1	3	11	81
1899	3	4	4	6	9	6	9	17	1	3	2	15	79
1900	4	4	3	3	10	6	18	9	6	3	5	25	96
Total	15	18	23	31	44	26	69	54	17	13	21	94	425

Year.	East Scotland	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. and E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	4	2	4	6	10	10	15	9	14	9	11	5	99
1902	1	3	10	7	4	4	11	10	3	14	1	4	72
1903	1	8	2	11	10	10	23	9	6	14	4	11	109
1904	4	3	3	10	10	10	14	6	8	17	4	6	95
1905	8	8	7	2	19	2	17	15	6	14	5	15	118
Total	18	24	26	36	53	36	80	49	37	68	25	41	493

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

(A)

TABLE V.

DEATHS from Accidents from Falls of Ground (*on Roads while otherwise Working or Passing*) in Mines under the Coal Mines Regulation Act, for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	–	6	4	2	8	2	8	2	—	5	4	11	52
1897	3	4	6	9	4	3	7	1	—	3	10	7	57
1898	1	4	2	7	7	9	13	4	3	–	7	7	64
1899	3	2	2	4	7	1	10	3	2	1	3	13	51
1900	5	4	6	6	9	4	8	7	1	4	5	14	73
Total -	12	20	20	28	35	19	46	17	6	13	29	52	297

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	4	3	5	3	8	6	7	7	4	14	4	2	67
1902	5	2	2	5	7	5	5	5	8	12	2	1	59
1903	4	9	7	6	11	6	5	3	1	17	3	3	75
1904	4	3	—	14	15	5	8	6	5	13	3	4	80
1905	4	4	6	8	14	1	10	1	4	15	5	9	81
Total -	21	21	20	36	55	23	35	22	22	71	17	19	362

In 1901 some of the inspection districts were re-arranged.

Digitized by Google

(A)

TABLE VI.

DEATHS from Accidents from Falls of Ground (*in Shafts*) at Mines under the Coal Mines Regulation Act for the years 1902–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1902	2	—	—	—	—	—	—	—	—	—	—	—	2
1903	2	—	—	—	1	1	—	—	1	—	—	—	5
1904	2	2	—	—	1	—	—	—	—	—	1	7	13
1905	—	—	—	—	—	—	—	—	1	—	—	—	1
Total	6	2	—	—	2	1	—	—	2	—	1	7	21

Digitized by Google

(B)

TABLE VII.

TOTAL DEATH RATES from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act, per 1,000 Persons employed Underground, for the Years 1896–1905.

—	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	Average.
Death rates from falls of roof and side per 1,000 persons employed:											
(*a*) At the working face	·52	·60	·50	·53	·52	·49	·48	·56	·48	·46	·51
(*b*) On roads while repairing or enlarging	·15	·16	·14	·14	·15	·15	·11	·16	·14	·17	·15
(*c*) On roads while otherwise working or passing	·09	·10	·11	·09	·12	·10	·09	·11	·12	·12	·11
(*d*) In shafts	—	—	—	—	—	—	·00	·01	·02	·00	·01
Total	·76	·86	·76	·75	·79	·74	·68	·84	·75	·75	·77

Digitized by Google

TABLE VIII.

TOTAL DEATH RATES from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground, for the Years 1896-1905 *for each District.*

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	·80	·99	·66	·55	·54	·76	1·05	·51	·99	1·05	·76	1·01	·76
1897	1·00	·97	·82	·83	·71	·87	1·07	·51	·74	·78	1·01	1·07	·86
1898	·66	1·09	·38	·79	·68	1·29	1·19	·61	·89	·73	·61	·73	·76
1899	·81	·64	·65	·91	·48	·94	·82	·62	·80	·85	·63	·97	·75
1900	·68	·90	·72	·68	·63	·80	1·11	·61	1·25	1·22	·76	·85	·79
Average -	·79	·91	·65	·75	·61	·93	1·05	·58	·94	·93	·75	·92	·78

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	·95	·67	·60	·61	·58	1·11	·92	·53	1·18	·77	·93	·66	·74
1902	·91	·75	·49	·61	·55	·65	·71	·58	·82	·96	·90	·49	·68
1903	·79	1·25	·52	·72	·79	1·11	·86	·57	1·01	1·13	·52	1·05	·84
1904	·64	·92	·50	·79	·72	·88	·80	·54	·89	·87	·89	·90	·75
1905	·81	·77	·58	·57	·81	·41	·99	·61	·86	·82	1·10	·86	·75
Average -	·82	·88	·54	·66	·69	·83	·86	·56	·95	·91	·87	·80	·75

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE IX.

(B) DEATH RATES from Accidents from Falls of Ground (*at the Working Face*) in Mines under the Coal Mines Regulation Act, per 1,000 Persons employed Underground, for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	·73	·73	·50	·45	·37	·60	·48	·37	·73	·55	·55	·59	·52
1897	·86	·69	·59	·60	·52	·72	·66	·27	·64	·57	·57	·71	·60
1898	·59	·88	·27	·47	·43	·72	·57	·45	·57	·68	·36	·51	·50
1899	·68	·46	·55	·75	·27	·72	·39	·33	·65	·65	·50	·63	·53
1900	·50	·68	·58	·54	·39	·50	·54	·39	·92	·89	·53	·42	·52
Average	·66	·69	·50	·56	·39	·65	·53	·36	·71	·67	·50	57	·53

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	·76	·56	·47	·47	·36	·66	·49	·32	·75	·44	·41	·49	·49
1902	·73	·65	·32	·43	·42	·39	·39	·39	·57	·59	·80	·37	·48
1903	·62	·89	·39	·48	·54	·65	·31	·42	·83	·69	·29	·74	·56
1904	·42	·75	·46	·44	·43	·47	·36	·39	·58	·46	·62	·53	·48
1905	·56	·52	·40	·43	·44	·33	·44	·41	·60	·43	·78	·34	·46
Average	·61	·67	·41	·45	·44	·50	·40	·39	·66	·52	·58	·50	·49

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE X.

DEATH RATES from Accidents from Falls of Ground (*on Roads while Repairing or Enlarging*) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire..	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	.07	·06	·09	·06	·06	·09	·39	·11	·26	·25	·10	·28	·15
1897	·07	·16	·12	·08	·14	·06	·25	·22	·11	·05	·18	·27	·16
1898	·05	·09	·07	·21	·15	·28	·32	·11	·16	·05	·06	·14	·14
1899	·07	·12	·07	·10	·12	·19	·21	·25	·05	·15	·05	·18	·14
1900	·08	·11	·05	·05	·13	·18	·39	·13	·28	·14	·12	·27	·15
Average -	·07	·11	·08	·10	·12	·16	·31	·16	·17	·13	·11	·23	·15

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	·09	·04	·06	·09	·12	·29	·29	·12	·33	·13	·38	·12	·15
1902	·02	·06	·14	·10	·05	·11	·22	·13	·07	·20	·03	·09	·11
1903	·02	·17	·03	·16	·11	·27	·45	·11	·14	·20	·13	·25	·16
1904	·09	·06	·04	·14	·11	·27	·28	·07	·19	·23	·13	·13	·14
1905	·17	·17	·09	·03	·21	·05	·34	·18	·14	·19	·16	·32	·17
Average -	·08	·10	·07	·11	·12	·20	·32	·12	·17	·19	·17	·19	·15

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

(B)

TABLE XI.

DEATH RATES from Accidents from Falls of Ground (*on Roads while otherwise Working or Passing*) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground for the years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total
1896	—	·19	·07	·03	·11	·06	·18	·03	—	·25	·10	·14	·09
1897	·07	·13	·10	·15	·06	·09	·16	·02	—	·16	·28	·09	·10
1898	·02	·12	·03	·11	·10	·28	·30	·06	·16	—	·18	·09	·11
1899	·07	·06	·03	·06	·09	·03	·23	·04	·10	·05	·08	·16	·09
1900	·10	·11	·09	·09	·11	·12	·17	·10	·05	·19	·12	·15	·12
Average	·06	·12	·07	·09	·09	·12	·21	·05	·06	·13	·15	·13	·10

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	·09	·06	·07	·05	·10	·17	·14	·09	·09	·20	·14	·05	·10
1902	·12	·04	·03	·07	·08	·14	·10	·06	·18	·17	·07	·02	·09
1903	·09	·19	·10	·09	·13	·16	·10	·04	·02	·24	·10	·07	·11
1904	·09	·06	—	·20	·17	·14	·16	·07	·12	·18	·10	·09	·12
1905	·09	·03	·08	·11	·16	·03	·20	·01	·10	·20	·16	·19	·12
Average	·10	·09	·06	·11	·13	·13	·14	·05	·10	·20	·11	·09	·11

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

(B)

TABLE XII.

DEATH RATES from Accidents from Falls of Ground (*in Shafts*) at Mines, under the Coal Mines Regulation Act, per 1,000 Persons employed Underground, for the Years 1902-1905

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. and E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1902	·05	—	—	—	—	—	—	—	—	—	—	—	·00
1903	·05	—	—	—	·01	·03	—	—	·02	—	—	—	·01
1904	·04	·04	—	—	·01	—	—	—	—	—	·03	·15	·02
1905	—	—	—	—	—	—	—	—	·02	—	—	—	·00
Average	·03	·01	—	—	·01	·01	—	—	·01	—	·01	·04	·01

Digitized by Google

(C)

TABLE XIII.

TOTAL DEATH RATES from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act, per 1,000,000 tons of Mineral raised, for the Years 1896–1905.

	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	Average.
Death rates from falls of roof and side per 1,000,000 tons of mineral raised :—											
(*a*) At the working face	1·40	1·56	1·33	1·32	1·36	1·37	1·33	1·55	1·32	1·26	1·38
(*b*) On roads while repairing or enlarging	·39	·41	·38	·34	·40	·43	·30	·45	·39	·47	·40
(*c*) On roads while otherwise working or passing.	·25	·26	·30	·22	·31	·29	·25	·31	·33	·32	·28
(*d*) In shafts	—	—	—	—	—	—	·01	·02	·05	·00	·02
Total	2·03	2·23	2·00	1·87	2·07	2·08	1·89	2·33	2·08	2·06	2·07

Digitized by Google

TABLE XIV

TOTAL DEATH RATES from Accidents from Falls of Ground in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896—1905 *for each District.*

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	1·75	2·27	1·77	1·17	1·59	2·29	2·98	1·42	2·60	2·22	2·43	3·25	2·03
1897	2·14	2·23	2·12	1·71	2·07	2·61	3·05	1·34	1·88	1·55	3·10	3·27	2·23
1898	1·42	2·51	·94	1·61	1·86	3·66	3·11	1·54	2·17	1·43	2·52	2·96	2·00
1899	1·75	1·51	1·66	1·88	1·31	2·65	2·16	1·51	2·01	1·73	1·80	2·78	1·87
1900	1·51	2·17	1.92	1·46	1·73	2·31	3·05	1·11	3·27	2·64	2·40	2·75	2·07
Average	1·77	2·14	1·68	1·57	1·70	2·71	2·87	1·47	2·39	1·92	2·43	2·99	2·04

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	2·24	1·65	1·68	1·36	1·74	3·50	2·82	1·41	3·14	2·56	2·99	2·23	2·08
1902	2·10	1·80	1·35	1·39	1·65	1·99	2·13	1·55	2·22	3·10	2·82	1·65	1·89
1903	1·79	2·97	1·41	1·65	2·37	3·52	2·60	1·55	2·79	3·63	1·68	3·58	2·33
1904	1·45	2·17	1·35	1·82	2·18	2·75	2·46	1·47	2·38	2·80	2·77	2·99	2·08
1905	1·82	1·85	1·56	1·31	2·36	1·27	3·11	1·60	2.29	2·71	3·42	3·00	2·06
Average	1·87	2·10	1·47	1·51	2·07	2·60	2·62	1·52	2·56	2·96	2·74	2·71	2·09

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE XV

DEATH RATES from Accidents from Falls of Ground (*at the Working Face*) in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	1·59	1·68	1·34	·86	1·10	1·81	1·36	1,02	1·91	1·16	1·76	1·89	1·40
1897	1·83	1·58	1·54	1·24	1·50	2·14	1·83	·71	1·61	1·14	1·75	2·18	1·56
1898	1·27	2·02	·68	·95	1·18	2·05	1·49	1·12	1·40	1·33	1·47	2·05	1·33
1899	1·46	1·10	1·41	1·55	·73	2·03	1·02	·79	1·63	1·33	1·44	1·81	1·32
1900	1·10	1·64	1·55	1·16	1·07	1·45	1·50	·96	2·42	1·93	1·67	1·37	1·36
Average -	1·44	1·60	1·30	1·17	1·11	1·89	1·45	·92	1·80	1·38	1·62	1·84	1·39

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern	Total.
1901	1·79	1·38	1·31	1·04	1·09	2·07	1·50	·85	2·01	1·45	1·33	1·65	1·37
1902	1·67	1·54	·87	·98	1·26	1·21	1·18	1·04	1·54	1·89	2·50	1·25	1·33
1903	1·42	2·12	1·06	1·09	1·61	2·06	·95	1·15	2·28	2·22	·94	2·51	1·55
1904	·95	1·77	1·23	1·03	1·29	1·46	1·11	1·07	1·54	1·49	1·95	1·75	1·32
1905	1·25	1·24	1·09	·99	1·28	1·02	1·40	1·09	1·59	1·42	2·41	1·20	1·26
Average -	1·40	1·61	1·11	1·03	1·31	1·56	1·22	1·04	1·79	1·70	1·84	1·68	1·37

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE XVI.

DEATH RATES from Accidents from Falls of Ground (*on Roads while Repairing or Enlarging*) in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896-1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	·16	·15	·24	·14	·16	·29	1·10	·31	·68	·53	·33	·91	·39
1897	·16	·36	·32	·17	·41	·19	·71	·58	·27	·10	·56	·82	·41
1898	·10	·21	·17	·43	·42	·80	·84	·27	·38	·10	·32	·55	·38
1899	·15	·27	·17	·20	·33	·53	·54	·61	·13	·31	·14	·52	·34
1900	·18	·26	·12	·10	·35	·51	1·08	·31	·73	·31	·36	·88	·40
Average	·15	·25	·20	·21	·33	·47	·85	·42	·44	·27	·34	·74	·38

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901	·22	·11	·16	·21	·36	·90	·90	·32	·88	·44	1·22	·41	·43
1902	·05	·15	·40	·24	·14	·35	·65	·34	·19	·65	·10	·31	·30
1903	·05	·40	·08	·36	·34	·86	1·36	·30	·38	·63	·42	·84	·45
1904	·20	·15	·11	·33	·34	·86	·86	·20	·51	·74	·41	·44	·39
1905	·38	·41	·25	·06	·62	·17	1·08	·48	·38	·62	·50	1·13	·47
Average	·19	·25	·20	·24	·37	·62	·97	·33	·47	·62	·52	·63	·41

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE XVII.

DEATH RATES from Accidents from Falls of Ground (*on Roads while otherwise Working or Passing*) in Mines under the Coal Mines Regulation Act per 1,000,000 tons of Mineral raised for the years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	—	·44	·19	·07	·33	·19	·52	·09	—	·53	·33	·45	·25
1897	·16	·29	·27	·30	·16	·28	·45	·04	—	·31	·79	·27	·26
1898	·05	·28	·09	·23	·27	·80	·78	·15	·38	—	·74	·35	·30
1899	·15	·14	·08	·13	·25	·09	·60	·11	·25	·10	·22	·45	·22
1900	·23	·26	·24	·20	·31	·34	·48	·24	·12	·41	·36	·49	·31
Average -	·12	·28	·17	·19	·27	·34	·57	·13	·15	·27	·47	·41	·27

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	·22	·16	·20	·10	·29	·54	·42	·25	·25	·68	·44	·16	·29
1902	·27	·10	·08	·17	·25	·43	·30	·17	·49	·55	·21	·08	·25
1903	·21	·45	·27	·20	·38	·51	·30	·10	·06	·77	·31	·23	·31
1904	·20	·15	—	·46	51	·43	·49	·20	·32	·57	·31	·29	·33
1905	·19	·21	·22	·26	·46	·08	·63	·03	25	·67	·50	·68	·32
Average -	·22	·22	·15	·24	·38	·40	·42	·15	·28	·65	·36	·29	·30

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

(C)

TABLE XVIII.

DEATH RATES from Accidents from Falls of Ground (*in Shafts*) at Mines under the Coal Mines Regulation Act, per 1,000,000 tons of Mineral raised, for the years 1902–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1902	·11	—	—	—	—	—	—	—	—	—	—	—	·01
1903	·11	—	—	—	·03	·09	—	—	·06	—	—	—	·02
1904	·10	·10	—	—	·03	—		—	—	—	·10	·51	·05
1905	—	—	—	—	—	—	—	—	·06	—	—	—	·00
Average	·08	·06	—	—	·02	·02	—	—	·03	—	·03	·13	·02

Digitized by Google

NOTE:—The letters at the head of the Tables in this Appendix denote that the various Tables marked (**A**) relate to number of deaths; (**B**) Death rates per 1,000 persons employed; (**C**) Death rates per 1,000,000 tons of mineral raised.

(**A**)

APPENDIX VII.

TABLE I.

TOTAL NUMBER of Deaths from Haulage Accidents in Mines under the Coal Mines Regulation Act for the Years 1896–1905.

Cause of Accident.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	Total.
Ropes or chains breaking - - - -	11	9	5	7	16	20	18	17	18	10	131
Run over or crushed by trams and tubs -	75	91	78	89	74	86	112	104	153†	153†	1.015
Other haulage accidents* - - - -	70	83	73	73	94	86	73	55	45	30	682
Total - -	156	183	156	169	184	192	203	176	216	193	1,828

* From 1896 to 1901 inclusive the classification was "On Inclined and Engine Planes.
† Change of classification in these years.

Digitized by Google

TABLE II.

TOTAL DEATHS from Haulage Accidents in Mines under the Coal Mines Regulation Act for the Years 1896-1905 *for each District.*

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	7	1	16	27	13	5	12	12	5	6	7	45	156
1897	7	6	14	23	22	12	17	9	8	7	9	49	183
1898	10	6	21	20	15	14	11	14	4	6	8	27	156
1899	14	8	16	20	14	11	10	12	9	5	11	39	169
1900	6	12	16	22	11	10	15	14	10	6	8	54	184
Total -	44	33	83	112	75	52	65	61	36	30	43	214	848

Year.	East Scotland.	West Scotland.	Newcastle.	Durham	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	8	10	13	21	21	1	20	15	9	49	15	10	192
1902	14	11	15	26	20	3	13	18	17	43	15	8	203
1903	8	6	14	22	19	7	14	13	13	34	17	9	176
1904	12	13	19	25	20	7	13	14	6	43	21	23	216
1905	9	11	20	18	15	5	9	16	10	49	14	17	193
Total -	51	51	81	112	95	23	69	76	55	218	82	67	980

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

(A)

TABLE III.

DEATHS from Haulage Accidents (*Ropes or Chains breaking*) in Mines under the Coal Mines Regulation Act for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnsh re.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	2	—	—	—	2	—	—	—	—	—	—	7	11
1897	—	2	—	—	—	—	—	—	—	—	—	7	9
1898	1	—	—	—	1	1	—	—	—	—	—	2	5
1899	2	1	—	—	—	—	—	—	—	—	—	4	7
1900	1	1	—	1	1	1	1	1	—	1	—	8	16
Total	6	4	—	1	4	2	1	1	—	1	—	28	48

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	4	2	—	1	—	—	4	—	1	5	3	—	20
1902	—	3	—	—	2	—	1	—	2	3	5	2	18
1903	1	—	1	1	2	1	4	2	1	2	1	1	17
1904	1	1	—	1	1	—	2	—	1	4	3	4	18
1905	—	1	1	1	—	—	—	1	1	3	—	2	10
Total	6	7	2	4	5	1	11	3	6	17	12	9	83

* In 1901 some of the inspection districts were re-arranged

Digitized by Google

TABLE IV.

DEATHS from Haulage Accidents (*run over and crushed by Trams and Tubs*) in Mines under the Coal Mines Regulation Act for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western	South Wales.	Total.
1896	1	1	11	15	7	3	2	10	1	4	2	18	75
1897	3	2	8	17	12	4	4	4	2	5	9	21	91
1898	5	4	12	15	7	7	3	4	1	3	8	9	78
1899	6	4	11	13	8	2	2	9	3	4	11	16	89
1900	—	6	5	15	8	1	3	5	3	4	5	19	74
Total	15	17	47	75	42	17	14	32	10	20	35	83	407

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool. and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	1	4	7	14	14	1	5	11	3	17	3	6	86
1902	6	5	11	6	16	2	8	12	8	29	3	6	112
1903	2	5	11	10	12	6	8	7	11	18	8	6	104
1904	6	11	18	11	15	7	10	7	5	35	13	15	153
1905	3	10	17	14	13	5	9	12	8	39	13	10	153
Total	18	35	64	55	70	21	40	49	35	138	40	43	608

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE V.

DEATHS from Haulage Accidents (*other Haulage Accidents**) in Mines under the Coal Mines Regulation Act for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. and E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	4	—	5	12	4	2	10	2	4	2	5	20	70
1897	4	2	6	6	10	8	13	5	6	2	—	21	83
1898	4	2	9	5	7	6	8	10	3	3	—	16	73
1899	6	3	5	7	6	9	8	3	6	1	—	19	73
1900	5	5	11	6	2	8	11	8	7	1	3	27	94
Total	23	12	36	36	29	33	50	28	26	9	8	103	393

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. and E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901†	3	4	6	6	7	—	11	4	5	27	9	4	86
1902	8	3	4	20	2	1	4	6	7	11	7	—	73
1903	5	1	2	11	5	—	2	4	1	14	8	2	55
1904	5	1	1	13	4	—	1	7	—	4	5	4	45
1905	6	—	2	3	2	—	—	3	1	7	1	5	30
Total	27	9	15	53	20	1	18	24	14	63	30	15	289

* From 1896 to 1901 inclusive the classification was "On Inclined and Engine Planes."
† In 1901 some of the inspection districts were re arranged.

Digitized by Google

TABLE VI.

TOTAL DEATH-RATES from Haulage Accidents in Mines under the Coal Mines Regulation Acts, per 1,000 Persons employed Underground, for the Years 1896-1905.

Cause of Accident.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	Average.
Ropes or chains breaking	·02	·02	·01	·01	·03	·03	·03	·03	·03	·01	·02
Run over or crushed by trams or tubs	·13	·16	·14	·15	·12	·13	·17	·15	·22†	·22†	·16
Other haulage accidents*	·13	·15	·13	·13	·15	·13	·11	·08	·07	·04	·11
Total	·28	·33	·	·29	·29	·30	·31	·26	·32	·28	·29

* From 1896 to 1901, inclusive, the classification was "On Inclined and Engine Planes."
† Change of classification in these years.

Digitized by Google

TABLE VII.

TOTAL DEATH RATES from Haulage Accidents in Mines under the Coal Mines Regulation Act, per 1,000 Persons Employed Underground for the Years 1896–1905, *for each District.*

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	·17	·03	·28	·44	·18	·16	·27	·19	·26	·30	·18	·57	·28
1897	·17	·19	·24	·37	·31	·37	·39	·14	·43	·36	·23	·62	·33
1898	·23	·18	·36	·32	·21	·44	·25	·21	·21	·31	·20	·34	·28
1899	·32	·23	·26	·32	·19	·34	·22	·18	·45	·25	·28	·47	·29
1900	·12	·33	·25	·34	·14	·30	·33	·20	·46	·28	18	·59	·29
Average	·20	·20	·28	·36	·20	·32	·29	·19	·36	·30	·22	·52	·29

Year.	East Scotland.	West Scotland	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	·19	·22	·19	·33	·25	·03	·39	·20	21	·71	·52	·25	·30
1902	·33	·24	·22	·39	·23	·08	·26	·23	·39	·62	·50	·19	·31
1903	·19	·13	·20	·32	·22	·19	·27	·16	30	·48	·56	·20	·26
1904	·26	·28	·26	36	·23	·19	·26	·17	·14	·59	·69	·51	·32
1905	·19	·24	·27	·25	·17	·14	·18	·19	·24	·66	45	·37	·28
Average	·23	·22	·23	·33	·22	·13	·27	·19	·26	·61	·54	·30	·29

In 1901 some of the inspection districts were re-arranged

Digitized by Google

TABLE VIII.

DEATH RATES from Haulage Accidents (*Ropes or Chains breaking*) in Mines under the Coal Mines Regulation Act, per 1,000 Persons employed Underground for the Years 1896-1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	·05	—	—	—	·03	—	—	—	—	—	—	·09	·02
1897	—	·06	—	—	—	—	—	—	—	—	—	·09	·02
1898	02	—	—	—	·01	·03	—	—	—	—	—	·02	·01
1899	·05	·03	—	—	—	—	—	—	—	—	—	·05	·01
1900	·02	·03	—	·02	·01	·03	·02	·01	—	·05	—	·09	·03
Average	·03	·02	—	·00	·01	·01	·00	·00	—	·01	—	·07	·02

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	·09	·04	—	·02	—	—	·08	—	·02	·07	·10	—	·03
1902	—	·06	—	—	·02	—	·02	—	·05	·04	·17	·05	·03
1903	·02	—	·01	·01	·02	·03	·08	·02	02	·03	·03	·02	·03
1904	·02	·02	—	·01	·01	—	·04	—	·02	·05	·10	·09	·03
1905	—	·02	·01	·01	—	—	—	·01	·02	·04	—	·04	·01
Average	·03	·03	·01	·01	·01	·01	·04	·01	·03	·05	·08	·04	·02

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

(B)

TABLE IX.

DEATH RATES from Haulage Accidents (*run over or crushed by Trams and Tubs*) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground, for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western	South Wales.	Total.
1896	·02	·03	·20	·24	·10	·09	·05	·16	·05	·20	·05	·23	·13
1897	·07	·06	·14	·28	·17	·12	·09	·06	·11	·26	·23	·27	·16
1898	·12	·12	·20	·24	·10	·22	·07	·06	·05	·16	·20	·11	·14
1899	·14	·12	·18	·21	·11	·06	·05	·13	·15	20	·28	·19	·15
1900	—	·16	·08	·23	·10	·03	·07	·07	·14	·19	·12	·21	·12
Average	·07	·10	·16	·24	·11	·11	·06	·10	·10	·20	·18	·20	·14

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York. and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	·02	·09	·10	·22	·17	·03	·10	·14	·07	·25	·10	·15	·13
1902	·14	·11	·16	·09	·19	·06	·16	·15	·18	·42	·10	·14	·17
1903	·05	·11	·15	·14	·14	·16	·16	·09	·25	·25	·26	·13	·15
1904	·13	·24	·25	·16	·17	·19	·20	·09	·12	·48	·43	·33	·22
1905	·06	·21	·23	·19	·15	·14	·18	·15	·19	·52	·42	·22	·22
Average	·08	·15	·18	16	·16	·12	·16	·12	·16	·39	·27	·20	·18

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

(B)

TABLE X.

DEATH RATES from Haulage Accidents (*other Haulage Accidents**) in Mines under the Coal Mines Regulation Act per 1,000 Persons employed Underground, for the Years 1896-1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	·10	—	·09	·19	·06	·06	·23	·03	·21	·10	·13	·25	·13
1897	·10	·06	·10	·10	·14	·25	·30	·08	·32	·10	—	·27	·15
1898	·09	·06	·15	·08	·10	·19	·18	·15	·16	·16	—	·20	·13
1899	·14	·09	·08	·11	·08	·28	·18	·04	·30	·05	—	·23	·13
1900	·10	·14	·17	·09	·03	·24	·24	·11	·32	·05	·07	·29	·15
Average	·11	·07	·12	·11	·08	·20	·23	·08	·26	·09	·04	·25	·14

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901†	·07	·09	·09	·09	·08	—	·21	·05	·12	·39	·31	·10	·13
1902	·19	·06	·06	·30	·02	·03	·08	·08	·16	·16	·23	—	·11
1903	·12	·02	·03	·16	·06	—	·04	·05	·02	·20	·26	·04	·08
1904	·11	·02	·01	·19	·05	—	·02	·09	—	·05	·16	·09	·07
1905	·13	—	·03	·04	·02	—	—	·04	·02	·09	·03	·11	·04
Average	·12	·04	·04	·15	·05	·01	·07	·06	·07	·18	·20	·07	·09

* From 1896 to 1901 inclusive the classification was "On Inclined and Engine Planes."
† In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE XI.

(C) TOTAL DEATH-RATES from Haulage Accidents in Mines under the Coal Mines Regulation Act, per 1,000,000 tons of Mineral raised, for the Years 1896–1905.

Cause of Accident.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	Average.
Ropes or chains breaking - - -	·05	·04	·02	·03	·07	·09	·08	·07	·07	·04	·06
Run over or crushed by trams or tubs -	·36	·42	·36	·38	·31	·37	·47	·43	·62†	·61†	·44
Other haulage accidents* - - - -	·34	·39	·34	·31	·39	·37	·30	·23	·18	·12	·29
Total - - - -	·75	·85	·73	·72	·77	·83	·85	·72	·88	·77	·79

* From 1896 to 1901 inclusive, the classification was "On Inclined and Engine Planes."

† Change of classification in these years.

Digitized by Google

TABLE XII.

TOTAL DEATH RATES from Haulage Accidents in Mines under the Coal Mines Regulation Act, per 1,000,000 tons of Mineral raised, for the Years 1896–1905 *for each District.*

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	·37	·07	·77	·93	·53	·48	·78	·53	·68	·63	·59	1·85	·75
1897	·37	·43	·63	·77	·89	1·12	1·10	·38	1·07	·72	·71	1·91	·85
1898	·51	·42	·90	·66	·57	1·25	·66	·54	·51	·61	·84	1·35	·73
1899	·68	·55	·66	·66	·51	·97	·60	·43	1·13	·51	·79	1·36	·72
1900	·27	·79	·65	·73	·38	·86	·90	·48	1·21	·61	·58	1·90	·77
Average -	·44	·46	·72	·75	·57	·94	·80	·47	·93	·62	·70	1·68	·76

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern	Total.
1901*	·45	·53	·53	·73	·76	·09	1·20	·53	·57	2·37	1·66	·82	·83
1902	·75	·57	·60	·88	·70	·26	·77	·60	1·05	1·99	1·56	·63	·85
1903	·12	·30	·53	·73	·65	·60	·83	·44	·82	1·54	1·78	·69	·72
1904	·60	·66	·71	·83	·68	·60	·80	·47	·39	1·88	2·15	1·68	·88
1905	·43	·57	·72	·58	·49	·42	·57	·51	·63	2·18	1·41	1·28	·77
Average -	·53	·52	·62	·75	·65	·40	·84	·51	·69	1·99	1·73	1·03	·81

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE XIII.

DEATH RATES from Haulage Accidents (*Ropes or Chains breaking*) in Mines under the Coal Mines Regulation Act, per 1,000,000 tons of Mineral raised, for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	·11	—	—	—	·08	—	—	—	—	—	—	·29	·05
1897	—	·14	—	—	—	—	—	—	—	—	—	·27	·04
1898	·05	—	—	—	·04	·09	—	—	—	—	—	·10	·02
1899	·10	·07	—	—	—	—	—	—	—	—	—	·14	·03
1900	·05	·07	—	·03	·03	·09	·06	·03	—	·10	—	·29	·07
Average -	·06	·06	—	·01	·03	·04	·01	·01	—	·02	—	·22	·04

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford	Cardiff.	Swansea.	Southern.	Total.
1901*	·22	·11	—	·03	—	—	·24	—	·06	·24	·33	—	·09
1902	—	·15	—	—	·07	—	·06	—	·12	·14	·52	·16	·08
1903	·05	—	·04	·03	·07	·09	·24	·07	·06	·09	·10	·08	·07
1904	·05	·05	—	·03	·03	—	·12	—	·06	·17	·31	·29	·07
1905	—	·05	·04	·03	—	—	—	·03	·06	·13	—	·15	·04
Average -	·06	·07	·02	·03	·03	·02	·13	·02	·08	·15	·25	·14	·07

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE XIV.

DEATH RATES from Haulage Accidents (*run over or crushed by Trams and Tubs*) in Mines under the Coal Mines Regulation Act, per 1,000,000 tons of Mineral raised, for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire	South Western.	South Wales.	Total.
1896	·05	·07	·53	·52	·28	·29	·13	·44	·14	·42	·17	·74	·36
1897	·16	·14	·36	·57	·49	·37	·26	·17	·27	·52	·71	·82	·42
1898	·25	·28	·51	·49	·27	·63	·18	·15	·13	·31	·84	·45	·36
1899	·29	·27	·46	·43	·29	·18	·12	·32	·38	·41	·79	·56	·38
1900	—	·39	·20	·50	·28	·09	·18	·17	·36	·41	·36	·67	·31
Average -	·15	·24	·41	·50	·32	·31	·17	·25	·26	·41	·57	·65	·37

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	·06	·21	·29	·49	·51	·09	·30	·39	·19	·82	·33	·49	·37
1902	·32	·26	·44	·20	·56	·17	·47	·40	·49	1·34	·31	·47	·47
1903	·11	·25	·42	·33	·41	·51	·47	·24	·70	·82	·84	·46	·43
1904	·30	·56	·67	·36	·51	·60	·62	·23	·32	1·53	1·33	1·10	·62
1905	·14	·51	·62	·45	·43	·42	·57	·38	·51	1·74	1·31	·75	·61
Average -	·19	·36	·49	·37	·48	·36	·48	·33	·44	1·26	·84	·66	·50

In 1901 some of the inspection districts were re-arranged.

Digitized by Google

TABLE XV.

DEATH RATES from Haulage Accidents (*other Haulage Accidents* *) in Mines under the Coal Mines Regulation Act, per 1,000,000 tons of Minerals raised, for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	·21	—	·24	·41	·16	·19	·65	·09	·55	·21	·42	·82	·34
1897	·21	·14	·27	·20	·41	·74	·84	·21	·80	·21	—	·82	·39
1898	·20	·14	·38	·16	·27	·54	·48	·39	·38	·31	—	·80	·34
1899	·29	·21	·21	·23	·22	·79	·48	·11	·75	·10	—	·66	·31
1900	·23	·33	·45	·20	·07	·68	·66	·27	·85	·10	·22	·95	·39
Average	·23	·17	·31	·24	·22	·60	·62	·22	·67	·19	·13	·81	·35

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and N. Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901†	·17	·21	·25	·21	·25	—	·66	·14	·31	1·31	1·00	·33	·37
1902	·43	·15	·16	·68	·07	·09	·24	·20	·4	·51	·73	—	·30
1903	·26	·05	·08	·36	·17	—	·12	·14	·06	·63	·84	·15	·23
1904	·25	·05	·04	·43	·14	—	·06	·23	—	·17	·51	·29	·18
1905	·29	—	·07	·10	·07	—	—	·10	·06	·31	·10	·38	·12
Average	·28	·09	·12	·35	·14	·02	·22	·16	·18	·57	·63	·23	·24

* From 1896 to 1901 inclusive the classification was "On Inclined and Engine Planes."

† In 1901 some of the inspection districts were re-arranged.

Digitized by Google

APPENDIX VIII.

RETURN showing for each Inspection District the Number of Fatal Accidents and Deaths from Overwinding at Mines under the Coal Mines Regulation Act for the Years 1896-1905.

NOTE.—The figures in brackets give the number of deaths.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	—	—	—	—	—	1 (8)	—	—	—	1 (1)	—	—	2 (9)
1897	—	—	—	—	—	—	—	—	—	—	—	1 (9)	1 (9)
1898	—	—	—	—	—	—	—	—	—	—	—	—	—
1899	—	—	—	—	—	—	—	1 (1)	—	—	—	—	1 (1)
1900	—	1 (1)	—	—	—	—	—	—	—	2 (4)	—	—	3 (5)
Total - -	—	1 (1)	—	—	—	1 (8)	—	1 (1)	—	3 (5)	—	1 (9)	7 (24)

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and North Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	1 (1)	1 (2)	—	—	1 (1)	—	—	—	—	—	—	—	3 (4)
1902	—	—	—	1 (1)	—	—	—	1 (2)	1 (1)	—	—	—	3 (4)
1903	—	—	—	—	—	—	—	—	—	—	—	—	—
1904	—	—	—	—	—	—	—	—	—	—	—	—	—
1905	—	1 (2)	—	—	—	—	2 (6)	—	—	—	—	—	3 (8)
Total - -	1 (1)	2 (4)	—	1 (1)	1 (1)	—	2 (6)	1 (2)	1 (1)	—	—	—	9 (16)

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

APPENDIX IX.

RETURN showing for each Inspection District the Number of Fatal Accidents on Surface Railways, Sidings, or Tramways at Mines under the Coal Mines Regulation Act for the Years 1896–1905.

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	Yorkshire and Lincolnshire.	N. & E. Lancs. and Ireland.	Liverpool.	Midland.	North Staffordshire.	South Staffordshire.	South Western.	South Wales.	Total.
1896	11	5	2	5	8	3	2	8	6	2	3	14	69
1897	8	5	2	6	7	1	6	5	2	1	3	11	57
1898	12	3	6	6	6	2	3	2	1	2	4	9	56
1899	10	6	9	5	11	1	3	5	2	2	3	12	69
1900	6	1	9	3	11	—	4	1	2	5	1	10	53
TOTAL -	47	20	28	25	43	7	18	21	13	12	14	56	304

Year.	East Scotland.	West Scotland.	Newcastle.	Durham.	York and Lincoln.	N. & E. Lancs. and Ireland.	Liverpool and North Wales.	Midland.	Stafford.	Cardiff.	Swansea.	Southern.	Total.
1901*	13	8	14	10	16	2	5	9	7	9	3	6	102
1902	7	8	9	2	13	6	5	4	3	8	1	—	66
1903	8	6	6	9	12	4	6	7	5	11	2	4	80
1904	7	5	11	4	7	2	4	5	1	11	6	3	66
1905	3	4	11	7	10	2	5	8	2	5	7	5	69
TOTAL -	38	31	51	32	58	16	25	33	18	44	19	18	383

* In 1901 some of the inspection districts were re-arranged.

Digitized by Google

APPENDIX X.

TABLE showing the Numbers of Candidates Examined and of Candidates who Passed at the Examinations for Certificates of Competency as Managers and Under-Managers of Coal Mines held by Boards of Examination during the five years ended 1905.

Mining District.	Year.																				Totals.			
	1901.				1902.				1903.				1904.				1905.							
	Candidates.				Candidates.				Candidates.				Candidates.				Candidates.				Candidates.			
	1st Class.		2nd Class.		1st Class.		2nd Class.		1st Class.		2nd Class.		1st Class.		2nd Class.		1st Class.		2nd Class.		1st. Class.		2nd. Class.	
	Examined.	Passed.	Examined.	Passed.	Examined.	Passed.	Examined.	Passed.	Examined.	Passed.	Examined.	Passed.	Examined.	Passed.	Examined.	Passed.	Examined.	Passed.	Examined.	Passed.	Examined.	Passed.	Examined.	Passed
East Scotland	108	50	100	82	140	51	99	82	140	57	112	95	129	79	103	93	144	57	113	101	661	294	532	453
West Scotland	59	22	34	19	66	21	38	19	72	25	29	16	55	27	27	11	60	26	20	13	312	121	148	78
Newcastle	28	10	44	23	28	14	46	21	31	16	39	18	23	12	35	16	31	20	37	23	141	72	201	101
Durham	12	7	49	28	16	8	70	39	17	8	64	31	24	12	48	21	22	10	58	21	91	45	289	140
York and Lincoln	41	10	44	19	38	8	75	26	33	13	67	33	30	6	58	15	35	11	42	19	177	48	286	112
Manchester	72	23	98	35	78	21	75	37	73	32	94	40	103	22	114	38	86	23	72	20	412	121	453	170
Liverpool and North Wales	14	4	48	20	15	3	44	19	12	3	57	24	16	2	49	24	16	3	44	27	73	15	242	114
Midland	18	5	39	12	20	9	36	12	17	11	38	16	20	7	43	20	15	5	40	21	90	37	196	81
Stafford	19	8	37	16	14	4	30	11	17	4	28	11	11	4	23	12	16	6	22	12	77	26	140	62
Cardiff Swansea	81	25	124	27	76	45	118	45	77	19	113	50	76	32	114	48	77	21	136	92	387	142	605	262
Southern	14	4	27	7	12	5	32	12	15	2	20	11	18	4	25	16	18	9	25	16	77	24	129	62
Totals	466	168	644	238	503	189	663	323	504	190	661	345	505	207	644	314	520	191	609	365	2,498	945	3,221	1,635

Digitized by Google

APPENDIX XI.

Report by German Commission on the Inspection of Mines by Workmen in Great Britain France and Belgium.

In 1898 the Prussian Minister for Trade and Industry sent a Commission to Belgium, France, and England in order to study the question of the participation of workmen by means of delegates in the inspection of mines. The Commission stayed in Belgium from the 18th to the 22nd of April, from that day to the 6th of May in France, and from the 6th to the 18th of May in England, and they not only visited the capitals of each country in order to obtain official particulars upon the system and its results, but also visited the principal mining districts, viz., Mons and Liège in Belgium, the Nord Department, Pas de Calais and St. Etienne in France, and Monmouthshire, South Wales, Newcastle, Durham, and Yorkshire in Great Britain. The Commission did not merely take the opinions of officials on the system of inspection, but so far as possible also obtained the opinions of mine owners and their representatives and of the workmen themselves.

The Commission found that in Great Britain the system dated from 1872. According to present regulations the men employed in a mine can, from time to time, select two persons from among themselves or any two other mining employees (not being mining engineers) to inspect the mine at their own cost; such two inspectors being entitled to visit and inspect every part of the mine at least once a month, and being required to make a trustworthy report on the result of their inspection. Should their report indicate a danger or a probability of danger, the proprietor, his representative or manager is required to send a faithful copy of the report to the inspector of the district.

No special regulations are laid down for the election of the workmen inspectors, nor for the payment of expenses; all this is left to the workmen themselves, and managed by them through their own organisations.

In France the system of inspection by workmen's delegates was created by the law of July 8, 1890. In that country the delegates are named by the miners to visit the underground portions of mines and quarries, their duties being exclusively to examine the arrangements made for the safety of the employees, and, in cases of accident, to examine the circumstances under which the accident occurred. A delegate is required to visit twice a month each mine and working place of his inspection district and examine the arrangements made for the men, and on the occurrence of a fatal or serious accident he must at once proceed to the spot. An employer must immediately on the occurrence of an accident notify the same to the delegate. A delegate must at each inspection enter his observations in a special book supplied by the employer, to which book the men must be allowed access. A delegate must during his inspection solely take note of technical questions concerned with the safety of the men and is required not to interfere in any question outside his competence. A delegate is elected for three years by secret voting. The costs of the inspection are paid to the delegates by the State, the time employed in inspection being reckoned as if they were working but the costs have to be repaid to the State by the employers as if they were direct taxes.

In Belgium the law of April 11, 1897, on the appointment of delegates to inspect mines, came into force six months later. It provides that every three years those sections of the "Conseils d'Industrie" which represent the coal industry shall submit to the Government the names of candidates for appointment as delegates to inspect the underground works of coal mines. The number, size, and limits of the inspection districts of the delegates will be fixed every three years by the King. There are to be at least thirty-five and at most forty-five inspection districts, and for each inspectorship the names of two candidates are to be submitted. Amongst other necessary qualifications the candidates must have had ten years' service as workmen or overseers in the district for which they are candidates, or at least in an adjoining district, and their appointment as delegates by the Government will be for a term of three years. Each delegate must visit the underground works of his inspection district at least eighteen times a month, and is required to make his report thereon, to which report the workmen shall have access. Each delegate receives from public funds £72 per annum besides travelling expenses.

The Commission, in sending their detailed report to the Prussian Minister of Trade and Industry, made the following remarks amongst others:—

"As will be seen from our report, the system of inspecting delegates has generally given good results in England, and not very good results in France. Whilst, no doubt, in England the system has only been put into operation in certain and not in all mines, and whilst it has been given up in many of the mines because the workmen lost interest in it, whilst, moreover, even where in operation, it is generally not carried out to its full legal extent, nevertheless the system may be said to give general satisfaction. This is especially the case as regards the mines of Monmouthshire and South Wales, in which mines there is danger of explosion. The workmen see in the system the fulfilment of an urgent desire of theirs. For them it is a satisfaction to feel that the mines are examined as regards their safety by men who enjoy their confidence, and to feel that notice must be given to the Government inspector of any impending or even merely apprehended dangers. On the other hand, the mine owners and their representatives recognise the wishes of the workmen as regards such inspection to be justified, and they perceive in the system a means by which any fears of impending danger may best be set at rest. Whilst they probably do not consider that their responsibility is in any degree lessened by the co-operation of the delegates, yet, in cases of serious accident, it is a certain comfort to them to be able to establish by the delegate inspector's latest report that there was no visible sign of danger before the occurrence. Although the inspections of the delegates often directly prevent dangers from arising, still the principal practical advantage of the system is, in the eyes of the employers, and as it would seem in the eyes of most of the men too, the fact that its existence is an inducement to the subordinate overseers to keep the mines in good order. The choice of delegates gives the employers no cause for complaint. They find that the delegates in general make trustworthy reports and seldom exaggerate, even if they occasionally say too much about trifles. Notices of dangers discovered, caused by the carelessness of individual men and entailing punishment on such men, seem not to occur. But the mining employers find no fault with this circumstance, for both they and the workmen consider the principal duty of the delegates to be that of carefully examining the mine as regards its safety in respect of the existence of fire-damp and the condition of the air shafts and doors and so forth—in fact, as regards all the points which the miners cannot themselves much influence. The Government inspectors also fully approve the system of workmen inspectors, not so much on account of any direct prevention of danger, but as tending to oblige the mine owners to keep the mine in good order. Whether the system has directly or indirectly lessened the number of accidents cannot be stated, but certainly the number of accidents per thousand men employed has largely decreased since 1872, when the system was established. Probably part of this decrease has been caused by the system, and the rest has arisen from stricter rules of management, and from improvements voluntarily introduced by the proprietors.

"In France the law for delegate inspection has not succeeded in fully satisfying the wishes of the men.

"A commissioner was appointed by the Chamber of

Digitized by Google

Deputies in 1895 to examine the conditions of work and of safety in the mines and the working of the law of July 8, 1890, and found that the delegates were not satisfied with that law, principally on the ground that it limits the number of their inspections and gives them insufficient authority. The delegates thought the number of inspections allowed was insufficient owing to the ever-changing circumstances in a mine, and that their allowances were insufficient to make them completely independent of the mine owners. They wanted, in addition to their present attributions, the right to stop work at points which they thought not enough protected against fire-damp or otherwise dangerous, until the arrival of a Government inspector; they also wanted to be allowed to use 'Pieler' lamps in examining for fire-damp. Moreover, they desired to be at once informed on the occurrence, not merely of fatal and evidently grave accidents, but of any such accidents as obliged a man to leave his work, and they wanted to be able to hold an inquiry in every such case. The Prussian Commission could not ascertain with exactitude the present opinion of the men on the law. Private and Government officials thought that the men had gradually lost interest in it. The delegates themselves mostly conduct themselves quietly. This may be partly ascribed to the fact that the employers have largely succeeded in preventing the election of delegates who belong to workmen's syndicates. The fears formerly expressed by the mine owners that the system of delegate inspection would give increased cause for disputes and strikes have been proved to have some foundation, so far at least as regards the first years of the existence of the system. The delegates chosen in the first years after the law came into force were, in many mines, persons badly disposed towards the mine owners, and contributed to injure the relations between the workmen and the management of mines. At present those fears are less felt owing to the domination of the syndicates over the election of delegates having been generally broken, and owing to the fact that the delegates recently elected have been, as a rule, individuals not hostile to the managers. Few, however, of those in authority at the mines now consider that the system has much practical use. They mostly consider that the delegates lack the necessary previous knowledge for the satisfactory fulfilment of their duties, and they also consider that Government supervision by mining engineers and controllers is fully adequate. The most they will allow is that the system may have a good effect in badly managed mines. Little weight is in general now given to the reports of the delegates, amongst whom, it is alleged, persons of but limited intelligence are often found, and against whom it is charged that they never report such defects as are attributable to the men. Various are also the opinions about the system entertained by the Government officials. Some regard its usefulness as very doubtful, and consider that any usefulness it possesses is only at badly managed mines; that the delegates have not sufficient knowledge for any practical co-operation with the officials in the inspection of the mines; that their reports are filled with trifles, are often exaggerated, and seldom give reason for official inquiries; that the delegates are afraid to call attention to defects for which the men are responsible; and that several delegates, by their lack of intelligence, even are themselves the cause of danger. Other Government mine officials, on the other hand, attribute a good deal of value to the system. They think that no decisive opinions could be expected of the delegates as regards methods of working a mine, reasons for fire-damp explosions, and other difficult questions of such kind, but that they did good service in watching the details of the work; also that the delegates could, in the course of time, pick up any technical knowledge which they lacked on first appointment; that no doubt the primary object of the system, viz., the prevention of accidents, would be better reached if the delegates were auxiliaries of the Government mine engineers and not directly elected by the workmen, as this gave no sufficient security that the choice would fall on an experienced workman; but men would not have the necessary confidence in delegates selected in any other way but by direct election, and thus that part of the good of the system would be compromised which now consisted in the satisfaction given to the men and to the public in general by the knowledge that whenever serious accidents occurred real representatives of the workmen were entitled to express their views on the causes of the accident.

"The statistics of fatal accidents in French mines during the past 20 years show that since 1891—that is to say, since the system of delegate inspection has existed—such accidents have largely diminished in number. It is difficult to say how far the delegate system has helped towards this result. In the opinion of the Prussian Commissioners, the reasons for which the delegate system has shown a less favourable result in France than in England is to be found, partly at least, in the law itself, some of whose provisions depart materially from the model of the British legislation on the subject. The obligatory introduction of the system in all mines does not seem to have been necessary, and was in some degree not expedient, seeing that in non-dangerous mines the workmen's interest in the matter was bound to fall off, whilst the delegates would be necessarily tempted to make much of trifles in their reports, or to interfere in matters outside their competence in order to show some reason for their existence. The provision of the French law that not merely employed workmen, but any who had ever worked, could be chosen as delegates, favoured the selection of persons entertaining hostility towards the employers, and who consequently did not carry on their duties purely from a professional point of view. The points above mentioned, and the throwing of the expenses on the mine owners, would necessarily make these latter, even from the commencement, less well disposed to the system than would be the case if provisions similar to those of the English law had been put in force. In some measure, however, and perhaps in great measure, the reason for the different results in France and England may be found in other circumstances—namely, in the very different nature of the supervision and of the management of mines, as well as of the position of the workmen. It is undeniable that Government supervision is much weaker in Great Britain than in France. Moreover, as regards the management of the mines, a material difference also exists, inasmuch as the number of scientifically educated mine engineers appointed to each thousand men is much larger in France than in England. In France the owners and directors of mines do not feel any strong necessity to disburden themselves of responsibility, and this is owing to the more extended Government control and to their own engineers' more thoroughgoing supervision. In England workmen's organisations such as are not found in France at all see after the workmen's interests, and their authority to do so is fully recognised by the employers.

"Owing to the brief existence of the system in Belgium its results cannot yet be stated. The outlook in Belgium is more favourable than in France for the co-operation of workmen's representatives in the supervision of mines, inasmuch as the Belgian mines are in general more dangerous, and the Government inspectors less numerous than is the case in France. Whether the Belgian system is destined to fulfil the expectations of its success is however questionable. If the Belgian system be compared with that of France, it must be admitted that the former possesses greater advantages in certain points over the latter. In the Belgian system an important guarantee is obtained for the election of such persons as possess most knowledge of the subject, and will refrain from interfering in matters outside their competence. This guarantee arises from the provision that the delegates are not elected directly by the workmen, but named by the Government from a list of candidates proposed for acceptance by a body comprising an equal number of employers and workmen, and that the delegates must have had long practical experience and a certain amount of theoretical knowledge also. The appointment of these delegates as permanent auxiliaries of the Government mine engineers, whose instructions they must follow, is calculated to increase the utility of the system in preventing accidents. This good effect may also be contributed to by the fact that the delegates are called upon not only to report on any defects which they notice during their inspections, and to help in inquiries made on accidents occurring, but are also required to give information of any offences against the mining laws or police regulations. Their appointment at a fixed and sufficient salary ensures their greater independence of the employers than is the case with the French delegates. On the other hand, delegates named according to the Belgian law will hardly enjoy quite the same confidence of the workmen as is the case with freely elected delegates, more especially as the Belgian delegates entirely cease working whilst holding the appointment, and become more or less officials. Perhaps it may follow that the

Digitized by Google

workmen will be somewhat less ready to denounce to the delegates cases of offences by the mine overseers against Mining Regulations, and cases of impending or apprehended danger. Whether the Belgian delegates will always fulfil their duties towards all parties impartially, strictly, and conscientiously, remains to be proved. It will be in the nature of things for these delegates to gradually become disinclined to resume their ordinary work. The possibility is therefore not entirely excluded that some of them may, during their tenure of office, seek to keep out of anything that might tend to prevent their re-election, and in this spirit may be inclined to shut their eyes to many an infraction of legal or police regulations on the part either of the workmen or of the mine officials, so far as they can do this without incurring suspicion of neglect of duty. Moreover, the zeal of some delegates might be not altogether uninfluenced by the thought that a very strict fulfilment of duty might make them disliked or even hated by their fellow workmen with whom they might have again to resume work, and by the remembrance that after the expiry of their mandate it might in certain circumstances be difficult for them again to find work at all."

APPENDIX XII.

TYPICAL "Apologies" posted up in Collieries in the Southern District.

I.

..... and Co., Ltd.

APOLOGY.

..... Colliery.

I, A. B., do hereby humbly apologise for violating Special Rule No. 20 on March 12th, 1906, in that I did not properly sprag the coal in my working place.

I also agree to pay a fine of one pound, to be given to the ..... and District Hospital, and to this apology being printed and posted up at the colliery.

(Signed) A. B.

(Witness) C. D.

II.

NOTICE.

The ..... Steam Coal Company.

..... Colliery..

I, the undersigned A. B., hereby express my regret and apology for, on the 14th day of June, 1906, committing a breach of the Mines Act and Special Rule 96, 1887, by sleeping in the mine, and thereby endangering the lives of the workmen in the mine, and the security of the mine. I tender my regret to the officials of the colliery and to my fellow workmen for so doing.

I further agree to pay 10s. to the poor box belonging to this colliery. I also undertake to pay the cost of printing this apology, and promise to observe and to support to the best of my ability the requirements of the Coal Mines Regulation Act, 1887 and 1903, and the Special Rules established thereunder.

Copies of this apology shall be posted up at the colliery.

(Signed) A. B.

..... Colliery Offices, June 20th, 1906.

APPENDIX XIII.

SPECIMEN reports made by Miners in the Southern District under General Rule 38

I.

..... COLLIERY.

INSPECTION ON BEHALF OF THE WORKMEN.

[NOTE BY INSPECTOR.—*The officials have no notice of the intention of making the examination until the men come to the pit top. Nor do the examiners know themselves until the check-weigher tells them on going for their lamps in the ordinary way of going to their work. Two men go together, and at each examination one fresh man is selected. So that each man makes the examination twice, and one knows what was found previously.*]

Bottom of long slope, north and south sides, A. B. and C. D. roads want repairing. Make of gas in E. F.'s road diluted. G. H.'s heading under repairs, a small quantity of gas was found in face of K. L.'s road, caused by fall of roof, removed by means of sheet. A make of gas found on M. N.'s road, caused by crush, diluted by means of sheet. Make of gas found (in face) between E. D.'s and S. R.'s road, caused by crush, diluted by means of sheet, and the make of gas in O. P.'s road still diluted. The right hand skip wants repairing; the slope under repairs. Q. R., the left-hand skip wants repairing. S. T.'s level under repairs. A small quantity of gas was found on U. V.'s heading, caused by fall of roof, removed by means of sheet. Also a small quantity of gas was found in W. Y.'s old road, caused by fall of roof, and was removed by means of sheet. No. 4 level and X. Z.'s under repairs. A small quantity of gas was found on No. 4 double parting, caused by fall of roof, removed by raising the ventilation. A small quantity of gas was found on B. A.'s old heading, caused by sheet being broken down, removed by replacing the same; also a quantity of gas was found on No. 3 return airway caused by fall of roof. Men withdrawn and was fenced off. A part of No. 3 wants repairing. All other working places and roadways are in safe working order.

(Signed) D. C.
May 11th, 1906. F. E.

The gas reported on No. 3 return has been removed by raising the ventilation and packing the hole.

(Signed) D. C.
F. E.

May 10th, 1906.

We the undersigned have examined A. B.'s slope intake: C. D.'s deep under repairs. Long slope under repairs. E.'s and F. G.'s heading under repairs. A bad stone in H. J. road wants pulling down.

Black Vein: Level under repairs in bad condition. In places K. L. road wants repairing. M. N.'s heading under repair. O. P.'s heading under repairs. Q. R.'s under repairs, and S. T.'s road under repairs. U. V.'s road under repairs. W. Y.'s place wants repairing. X. Z.'s level under repairs. Flooring of small engine house wants repairing, 7½ft. of timber wanted. All other working places and airways in good condition and free from gas.

(Signed) B. A.
D. K.

Digitized by Google

May 10th, 1906.

We, the undersigned, have examined Big Vein and ¾, and found it in the following condition:—

Big Vein: From the top of return to A. B.'s place wants repairing. Small cap of gas found in C. D.'s place, caused by fall of roof, diluted by means of sheet. Small cap of gas found in E. F.'s road, caused by fall of roof, diluted by means of sheet. Small quantity of gas found in face of G. H.'s heading, caused by fall of roof, diluted by means of sheet. J. K.'s road wants repairing. L. M.'s road wants repairing. N. O.'s road wants repairing. P. Q.'s level wants repairing. R. S.'s heading under repairing. Return between T. U.'s old heading and V. W.'s old level wants repairing. ¾ level under repairs. All other roadways and airways in good condition and free from gas. Ventilation good.

(Signed) G. L.
D. M.

II.

26th June, 1906.

..... COLLIERY.

We, the undersigned, employed at the above-named mine, and appointed by our fellow-workmen to examine the mine on their behalf, hereby declare that such examination has been duly made, and the following is a true report thereof:—

WEST DISTRICT, 5 FEET SEAM.

Two broken pairs of timber outside double parting. Two places fell in result of a squeeze on straight level. Rubbish wanted badly in A.'s dip. Stall roads in bad repair off B.'s heading. Airway wants opening out between Nos. 1 and 2 dips. Want repairing B.'s heading, near 1st stall road. Rubbish wanted in C. E.'s stall road. Want repairs on E.'s parting off F. G.'s heading. Doors and sheets in good order. Ventilation good. We examined the up-cast pit, and found four bottom curbs full of rubbish.

(Signed) A. B.
C. D.

SOUTH DISTRICT, 5 FEET SEAM.

Several small falls on sump dip. A pair of timber want doubling between doors outside drift parting. Airway off sump dip in a bad state of repair. Several places on intake in bad state of repair between sump dip and 2nd airbridge. These have been previously reported on two occasions. Repairs wanted on old No. 51 heading. Several pairs of timber want doubling on C. D.'s road (old heading). Repairs and widening wanted on old horse parting on same heading. Repairs wanted on turn from C. D.'s old heading; also several stones want taking down from C. D.'s to E. F.'s heading. A collar wants taking out by G. H.'s parting on I 's heading. A bad stone on same heading above J. K.'s parting. Repairs wanted on L. M.'s heading above and below N. O.'s parting, also below P. Q.'s parting. Ripping and widening wanted on bottom of E. F.'s heading. Repairs and widening wanted on T.'s heading. A couple of pairs of timber want changing on U. V.'s parting, on W.'s heading. Repairs wanted on X.'s heading near face. Airway off Y.'s heading wants cleaning. Two pairs of timber inside end of double parting want changing, also two pairs in middle of same want taking out. We visited the fan at 6.50 a.m. Revolutions, 60 per minute. Steam pressure, 57 lbs. Water-gauge, 5·60. Barometer, 29·81. Doors and sheets in good order. ventilation good.

(Signed) E. F.
G. H.

No. 3 EAST DISTRICT. B.V. SEAM.

A low pair of timber on A. B.'s heading (man put to same). A low pair of timber on C. D.'s heading (man put to same).

No. 4 NORTH DISTRICT. B.V. SEAM.

Horses roofing between A. B.'s and C. D.'s partings. A slight show of gas on No. 1 dip, also a slight show of gas on No. 2 dip. A low V pair on E. R.'s parting (breaking trams of coal). Two low collars on incline want taking out. A bad stone between horse parting and double parting. A low collar on dukey parting breaking trams of coal. Several bad stones from double parting to mouth of G.'s heading (man put to same). A bad stone on mouth of H.'s heading (man put to same). A general scarcity of suitable timber and flats in this district. Return in several places in bad repair near airbridge. Doors and sheets in good order. Ventilation good. We examined the new headings, and found it in good condition.

No. 2. SEAM.

Several broken collars on main intake (man put to same).

(Signed) K. L.
M. N.

No. 2 EAST DISTRICT. B.V. SEAM.

Rope rubbing in side-wall, near pit-bottom. Three broken pairs of timber near mouth of new headings. Three broken pairs of timber outside mouth of No. 3 drift. Four broken pairs of timber inside No. 3 drift. A number of collars need changing over side-walls between No. 1 parting and knocker hole. Three broken pairs of timber between East turn and South run. Three broken pairs of timber outside old North dip. Three broken pairs of timber outside No. 8 cross-cut. Sheave fast in upright between No. 4 turn and bottom of No. 2 (man put to same). A number of rollers required on dukey road, also low bridge of timber near No. 4 turn. Two broken pairs of timber on No. 2. Rope rubbing in several places on double parting. A bad stone on same parting (man put to same). A bad stone on horse parting (man put to same). Two bad stones on drift (man put to same). Two pairs of broken timber between C. D.'s parting and E. F.'s parting. Two broken pairs of timber between G. H.'s parting and I. J.'s parting. One broken pair of timber outside K.'s heading. A show of gas in hole between L. M.'s and N. O.'s face. A show of gas in hole below P. Q.'s face. A scarcity of suitable timber and flats left-hand side of this district. There is no water in this district for horses. Men can travel the ladder drift. Return want watering.

No. 3 SEAM.

Two broken pairs of timber on bottom of drift. Return need repairing between A.'s cross-cut and No. 1 pit. Scarcity of fails in this district.

(Signed) O. P.
R. S.

No. 4 DIP, 5 FEET SEAM.

A strong show of gas left-hand side of A. B.'s heading, also on right of same. Repairs wanted on some heading. Horses roofing in same. A bad stone on C. H.'s heading (man put to same). A show of gas on D. E.'s road from feeder. A bad stone on F. G.'s old heading (man put to same). A show of gas in No. 1 ladder drift. Want repairs on intake leading to ladder drift. A bad stone on H. I.'s heading between J. K.'s and L. M.'s roads. Horses roofing in same. Want repairs in several places on main intake. A general scarcity of 3 ft. 9 in. timber, 6 ft. flats, cogs and rails. Doors and sheets in good order. Ventilation good, except No. 8 seam.

EAST SIDE, 5 FEET SEAM.

Want repairs in several places on A. B.'s heading, also by 1st cross-cut off C.'s heading. A bad stone on D. E.'s road by F. G.'s parting. A bad stone on H.'s heading. Horses roofing by I.'s parting. A low bridge of top between J. K.'s road and L. M.'s road. Repairs wanted on N. O.'s heading between doors. A low bridge of top on P.'s heading. A few pairs of broken timber on Q. R.'s heading. Intake in bad repair, also return want repairing in several places. A scarcity of timber and rails in this district. Doors and sheets in good order. Ventilation good. We examined the East drift, and found one broken collar on parting.

(Signed) S. T.
T. W.

Digitized by Google

APPENDIX XIV.

REPORT ON THE CHARTER MASTER SYSTEM IN SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE.

Barlaston, Stoke-on-Trent, 26 April 1906.

The Charter Master or "Butty" system of working the mines is a system by which the pits are worked by Contractors, called Charter Masters, under an agreement with the owner of the colliery to deliver the coal, ironstone, or fireclay on the bank or at a wharf, at an agreed price per ton. The agreements are usually terminable by two or four weeks' notice from either party.

The colliery owner sinks the shafts, erects and maintains the machinery, and pays the winding engineman and boiler stoker. If safety lamps are used the owner provides and maintains them. In some cases the owner also pays a small sum (2s. 6d. per week) to the fireman or "doggy" who examines the workings before the men go down, as required by General Rule 4. The owner also pays more or less for unproductive or "dead" work underground, but I believe the practice varies in this respect.

With the above exceptions the Charter Master pays all wages and engages and dismisses the workmen. Holers are paid by the "stint" of so many superficial feet of holing, and the other workpeople are paid day wages. The Charter Master provides horses and fodder, tubs, tools, candles, and explosives, and other stores. Tramrails are provided by the owner, and, in some cases, he also provides timber.

When a certificated manager is required, or an undermanager employed, the owner pays them as required by the Act, and they look after his interests as against the Charter Master. When no manager is required a mining engineer will make periodical visits in the owner's interests.

Charter Masters are almost invariably working miners who have acquired sufficient capital to enable them to take the working of a pit by contract. They have no permanent interest in the mine, and their chief object is to get the coal that is most easily obtained at the smallest possible cost. The system conduces to the working of the pits in an unskilful way, and to the neglect of discipline and measures of safety.

The Charter Master system has often been condemned by inspectors of mines and others interested in mining. In his first report, dated September, 1851, the late Mr. Morton says:—

"The 'butty' system which prevails in some collieries of the Midland counties, tends to retard the advance of mining improvement; but it is fortunately unknown in Yorkshire. The 'butties' are contractors with very limited capital, to whom pits are sublet, and who undertake to raise the minerals at a fixed price per ton. They are generally uneducated and unskilful persons, raised a step above the ordinary miner, and to whom a remuneration derivable from the proprietors on the one hand and from the labourers on the other is the chief object, regardless often of the permanent welfare of both.

"Under this system, supervision by the coalmaster or his bailiff is lax and irregular, and by degrees the 'butty' becomes almost the sole controller of the colliery and of those who work therein. He is unwilling to incur any outlay in building ventilating furnaces, in making or enlarging airways, or in erecting the needful doors and stoppings; and, consequently, the pits under his management are indifferently aired. He allows the shafts and tramroads to get out of repair; he thinks iron 'guide rods' and wooden 'conductors' in pits are quite superfluous; tools, timber, and other materials are by him grudgingly supplied; suggested ameliorations are objected to; his contract being terminable at short notice, he has no abiding interest in the mine; he feels no intense anxiety or definite responsibility concerning the safety and comfort of the work people; and his excuse is, that it is the duty of each man and boy to take care of himself.

"'Butties' are often directly or indirectly connected with taverns and shops, where the miners' wages are spent in the purchase of bad and dear ale and provisions; and large quantities of intoxicating liquor are daily taken into the pits, and given to old and young in lieu of money wages. The effect of the 'butty" system is to endanger and demoralize the mining population; to estrange the masters from the labourers; and to deprive the latter of the substantial benefits and civilising influences which would otherwise spring out of closer contact with the superior generosity and intelligence of colliery owners and their principal agents.

"It is true that many proprietors are striving to modify this impolitic system, and to efface some of its worst features; but, even in its mitigated form, it is replete with injury to the employed, and is ultimately unprofitable to the employer."

Although the evils of the system have been reduced by legislation since the above remarks were written, they are by no means eradicated in the Black Country. Many of the Charter Masters are good practical miners, but generally of the most limited education, and of experience confined to the indifferently managed pits of the district. Their interests as contractors tends to make them consider cost before safety.

Charter Masters often have relatives working for them, and sometimes appoint a son or brother to act as "doggy" and make the examination under General Rule 4, which they are disqualified by the Act from making themselves. It is more difficult to get at the facts respecting accidents in Charter Masters' pits than in others, the workmen seeming unwilling or afraid to give information.

As matters are at present the management of the pits is far too much in the hands of the Charter Masters. Even when there is a certificated manager and undermanager they sometimes have so many pits that they can only give very limited attention to each. Thus, at the Earl of Dudley's Himley Colliery, where there is a manager and one under-manager, there are eleven pits, at seven of which more than thirty persons are employed underground; and at the same owner's Coneygre and Saltwells Collieries, where there is also a manager and one under-manager, they have twelve pits, at ten of which more than thirty persons are employed underground. The pits at these collieries are, in some cases, three or four miles apart, so that it is evident a manager and one under-manager will only be able to devote a very short time to each pit, if all are visited daily; and, in the absence of the manager or under-manager, the Charter Master or his "doggy" has entire charge of the pits.

The local officials of the Miners' Union strongly condemn the Charter Master system.

Digitized by Google

The attached Table enables a comparison to be made between the num death-rate in the Black Country and other parts of the Staffordshire distric

Year.	Portion of District.	Deaths.					
		Explosions of Fire-damp and Coal-dust.	Falls of roof and sides.	Shaft Accidents.	Miscellaneous Underground.	On the Surface.	Total.
1901	Shropshire	—	5	—	—	1	6
	North Staffordshire	6	18	2	5	4	35
	Cannock Chase	—	13	—	4	3	20
	Black Country	2	14	2	3	4	25
	Whole District	8	50	4	12	12	86
1902	Shropshire	1	1	4	—	—	6
	North Staffordshire	—	14	—	11	1	26
	Cannock Chase	—	7	2	7	4	20
	Black Country	1	14	1	6	1	23
	Whole District	2	36	7	24	6	75
1903	Shropshire	—	1	—	1	1	3
	North Staffordshire	—	15	3	12	2	32
	Cannock Chase	1	13	—	6	4	24
	Black Country	—	15	2	7	5	29
	Whole District	1	44	5	26	12	88
1904	Shropshire	—	2	4	—	—	6
	North Staffordshire	3	13	1	9	2	28
	Cannock Chase	—	14	1	4	—	19
	Black Country	2	8	4	—	1	15
	Whole District	5	37	10	13	3	68
1905	Shropshire	—	3	—	1	—	4
	North Staffordshire	1	16	2	6	2	27
	Cannock Chase	1	6	1	5	1	14
	Black Country	—	11	—	10	2	23
	Whole District	2	36	3	22	5	68

* The death rate for the whole of the United Kingdom was as follows :—1901, 1·36; 1902, 1·24 1905, 1·24.

Digitized by Google

APPENDIX XV.

REPORT ON A RECENT VISIT to the Westphalian Coalfield, by Dr. J. S. Haldane, F.R.S., Mr. Henry Hall, I.S.O., and Mr. W. N. Atkinson.

In the course of a visit to the Westphalian Coalfield we have endeavoured to gather information on the following subjects, in connection with matters referred to the Royal Commission on Mines:—

1. The watering of dusty roads.
2. Ventilation.
3. The provision of rescue and ambulance appliances.
4. Recent experience in connection with the prevention of Ankylostomiasis.
5. The testing of lamps, explosives, and electrically-driven machines, in connection with risk of explosions.
6. Provision of baths.

1.—THE WATERING OF DUSTY ROADS.

The regulations (promulgated December 12th, 1900) of the Mining Board at Dortmund are as follows:—

"Paragraph 33. (i) In all mines water pipes must be provided and maintained in working condition, so that all parts of the mine used for coal getting, haulage, passage of men, or ventilation, can be watered for the prevention of danger from coal dust, in accordance with the regulations contained in Paragraphs 34 and 35.

"(ii) Exemptions may be obtained on request either for the whole mine or particular parts of it, if and so long as these parts are moist and free from coal dust, or if special circumstances connected with the conditions of working justify an exemption.

"(iii) Exemptions are decided in the case of bituminous seams (seam Laura to seam Sonnenschein) by the Mining Board (Oberbergamt): in all other cases by the district inspector. They may be cancelled at any time.

"Paragraph 34. (i) In all work connected with development, coal getting, and stowing, for which in accordance with Paragraph 33 the provision of water-pipes is required, the bars, props, and coal got down must be moistened sufficiently to prevent any deposit of dry dust in and about the working places.

"(ii) The roads used for haulage, travelling, or ventilation, including self-acting inclines, must be sufficiently watered to prevent danger from deposits of dust.

"(iii) In cases where there is reason to believe that watering would so disturb the surrounding strata as to considerably increase the danger from falls of stone or coal, the watering may be omitted with the special consent of the Mining Board.

"Paragraph 35. (i) The leading miners (Ortsältesten) are responsible for the watering of the working places connected with development, coal getting, and stowing, within a radius of 22 yards of each working place.

"(ii) The watering of roads for haulage, travelling, and ventilation, including self-acting inclines, must be carried out by specially appointed and responsible men, who must be furnished by the manager or his substitute with a written notice exactly defining his duties.

"(iii) The names of these persons and of the directions given them must be entered in the colliery book.

"Paragraph 36. (i) The men employed in watering must at once give notice to the district overman or his deputy if they are unable to carry out their work through defects or damage to the water-pipes or the apparatus connected with them.

"(ii) The above-named officials must see that the watering men perform their duties, and that defects in or damage to the watering apparatus are at once rectified, or failing this, that the workmen are withdrawn from the part of the mine affected.

"(iii) In addition to these officials, the manager is responsible for the provision, maintenance, and proper application of the watering apparatus."

Digitized by Google

In consequence of these regulations, water-pipes and apparatus for keeping wet all dusty parts of Westphalian coal mines have been in universal operation since the end of the year 1901, though they were already in use in many of the more important mines before this date. We were informed that since their introduction no serious explosions have occurred.

We have visited several collieries in different parts of the Coalfield, and with different underground conditions, in order to observe for ourselves the methods used in watering. We found that in every colliery with dusty seams, water-pipes varying in internal diameter from about 3½ inches near the shaft to about ½ inch at the working face are laid throughout the mines. At intervals of about 40 to 50 yards taps are provided on these pipes, to which short lengths (about 20 yards) of light hose can be attached by the man responsible for the watering. The watering is done by compressing the end of the hose, either with the finger or the thumb, or by a wire ring, so as to obtain a scattered jet, with which the floor, sides, and roof are thoroughly wetted, this being repeated as often as is necessary to prevent the dust from drying. In some places, as at the working faces, the watering may be required several times during each shift, while in return air-ways only an occasional watering every few days may be needed, or no watering at all. We satisfied ourselves that the process is carried out most thoroughly and efficiently in all parts of the mines, the only places occasionally found somewhat dusty being working places where dry coal was being got down. Collieries infected with Ankylostomiasis come under a Special Rule, by paragraph 7 of which it is provided that only pure water, taken either directly from overlaying strata or from the surface, may be used for watering. In all the larger mines this rule applies.

So far as we could judge from conversation with mine managers and other responsible officials, the watering regulations have their strong general support, though there were many misgivings at first. Serious damage to the roads seems very exceptional, so long as too much water is not applied at one time.

The use of stationary sprays, &c., appears to have been discontinued in favour of hoses attached to taps and worked by hand.

With regard to the cost of supplying watering apparatus and keeping it in operation we may quote the following particulars, from a paper written by Ingénieur Ernst Stach, Lecturer in the Bochum Mining School, in connection with the International Exhibition at Liège, 1905.

The cost of watering in material, upkeep, and extensions for Hibernia Colliery, Gelsenkirchen, has been as follows :—

Year.	Total Cost.	Output in Tons.	Cost per Ton in Pence.
	£		
1890–94 - - - - -	7,540	1,572,587	1·15
1895 - - - - -	2,799	277,586	2·42
1896 - - - - -	2,090	259,464	1·93
1897 - - - - -	2,364	255,764	2·22
1898 - - - - -	2,188	261,102	2·01
1899 - - - - -	1,965	291,571	1·62
1900 - - - - -	1,932	296,906	1·56
1901 - - - - -	1,903	265,357	1·72
1902 - - - - -	1,887	262,054	1·73
1903 - - - - -	1,404	268,700	1·25
1904 - - - - -	1,187	273,052	1·04
Total - - - -	27,255	4,290,133	1·52

see Q 6034

At another larger colliery (Consolidation) the cost of watering during 1904 was £2,688 for material and £3,652 for wages. As the output was 1,430,206 tons, the cost per ton raised was 1·06 pence.

Through the courtesy of one of the largest Colliery Companies in Westphalia we are also enabled to quote the following corresponding figures for their Collieries, in one of which, as will be seen, practically no watering was needed in any of the seams worked.

Digitized by Google

1	0·34	5	0·001	9	1·87	13	0·78
2	1·66	6	1·68	10	1·82	14	1·66
3	0·43	7	1·87	11	1·22	15	0·80
4	1·00	8	1·34	12	0·86	—	—

Against the cost of watering there are several advantages to be set:—

1. There is absolute safety against sweeping dust explosions such as that at Courrières and those which have often occurred in England, and may still occur at any time, in consequence of an accidental small explosion of gas, or mistake as regards blasting.

2. The watering is a safeguard against fire, and the water-pipes all over the mine are extremely useful in case of actual fire. The water may also be used at very little cost in the form of water jets for the ventilation of headings, &c., through air-pipes; for wetting shot-holes during boring in stone, and for other purposes.

3. The cooling effect of the evaporation of the water is useful in deep mines.

There are differences of opinions as to how far the introduction of watering has favoured the spread of Ankylostomiasis. In any case this disease has been got rid of with striking rapidity, in spite of the continuance of watering.

In view of the results of the watering regulations in Westphalian mines, and the circumstances in this country, so far as they are as yet known to us, we submit that it is desirable for the Commission to consider whether thoroughly efficient watering of the floor, sides, and roof is not required in English coal mines which are dry and dusty. For the present, at any rate, such watering might be made compulsory only in the case of the haulage roads, men's travelling roads, and intake roads of any kind in which dry coal dust (from surface or elsewhere) is present. It some cases it might be found that watering sufficient to keep the roads free from dust would seriously injure the roof, floor, or sides; and to meet such difficulties the following conditions have suggested themselves to us as an alternative:—

1. The seam to be worked with safety lamps.

2. When shots are fired in any part of the seam all workmen to be removed from the seam and from all seams communicating with the shaft on the same level, except those necessarily present (not exceeding ten) for the purposes specified in General Rule 12 (i) (2).

3. Where one haulage road joins another, dustless spaces at least 50 yards in length to be constantly maintained in every direction from the point of junction, and wet and dustless spaces at least 100 yards in length to be maintained at the far end of every haulage road.

The records of previous explosions have shown that their wide-spread propagation has generally occurred along haulage roads (usually intakes), there being little tendency to the spread of explosions along returns, unless used for haulage. The consequences of an explosion or fire on a road used for haulage, travelling, or intake of air are also specially disastrous, since not only are many men employed along these roads, but afterdamp and falls of roof cut off the escape of men beyond the explosion, and greatly hinder rescue work, while afterdamp or smoke from a fire on an intake road tends to be carried onwards through the workings by the ventilation, with disastrous effects.

There appear to be several strong arguments against compulsory watering at the working face. In the first place, air which is very warm, as will nearly always be the case at the working face in deep mines, is extremely oppressive if it is at the same time nearly saturated with moisture. In an air-way with a good current passing the evaporation of moisture will produce a considerable reduction of temperature, sufficient to counteract any oppressive effect from the saturation of the air. At the working face, however, the air current is often too small for any material reduction in temperature to be effected in this way, while the effects of saturation of the air on a man's working powers may be very serious. A second reason is that, in view of all that is known as to the conditions which favour the development of Ankylostoma ova, to infective larvæ, the conclusion can hardly be avoided that watering at the working face, where temperature is high, would increase the risks of Ankylostomiasis infection, and complicate preventive measures for combating this risk.

The cost of the restricted watering proposed would presumably be considerably less than that of the more complete system of watering, as carried out in Westphalia.

Digitized by Google

2.—Ventilation.

The Regulations of the Dortmund Board of Mines with respect to Ventilation are somewhat elaborate, and we need perhaps only mention the following points:—

In every district of a mine the air supply must be at least 10 cubic metres (about 100 cubic feet) for each person employed; and in all main and branch ventilation roads proper stations must be arranged for measuring the air-current, measurements being made at these stations at least once a fortnight and entered in a book. The ventilation must also be sufficient in each district to keep the percentage of fire-damp in the return air of every district under 1 per cent.; and this must be ascertained by analysis quarterly, the CO_2 being also determined. The men must be at once withdrawn if noxious gases of any kind are present to any considerable extent. At any time or place in a mine an Inspector may take a sample and have it analysed at the cost of the owner. All working places must be examined by a fireman with a safety lamp not more than three hours before the arrival of each shift. The "leading miner" must also similarly examine the working place at the commencement of each spell of work, and stop the work and report the gas if any be found.

We found that the air samples from all the mines in the district are sent for analysis to the Chemical Laboratory of the School of Mines, where we saw the arrangements made for sampling and analysis. These arrangements appear to work very smoothly.

3.—Provision of Ambulance and Rescue Appliances.

The Regulations of the Mining Board at Dortmund require that at each colliery there shall be a properly equipped ambulance room, provided with everything needed for first aid and the treatment of minor injuries, and that at least one person thoroughly trained in giving first aid shall always be available. We visited the ambulance rooms at several collieries, and found them extremely well equipped, and in charge of an attendant who was ready to treat all minor injuries, as well as to give first aid in more serious cases.

The regulations also provide that there shall be stretchers available at suitable places underground, and an ambulance carriage above ground.

The provision of rescue apparatus for penetrating into irrespirable atmospheres is not compulsory, but at all the collieries we visited we found that not only were sets of such apparatus provided, but a number of men regularly trained in their use. Fires from spontaneous combustion are not infrequent in the Westphalian collieries, and in dealing with these the men trained to work with the rescue appliances are frequently employed. Various types of rescue apparatus were in use at different mines—for instance, the Shamrock, Dräger, and Pneumatogen types, and the older Giersdorf and Pneumatophor types. At Shamrock Mines, through the courtesy of Mr. Meyer, the General Manager, we were present at the fortnightly exercise of the corps of men trained to use the new Shamrock apparatus, and saw them go through, in an atmosphere of smoke, various kinds of work in an artificial gallery constructed for purposes of training. Each man continued the work (building stoppings, etc.) for two hours without intermission, and at the end of this time none of them appeared to be at all exhausted, or in any way the worse. One of us went in for a time, wearing the apparatus. At Shamrock and other collieries smoke-helmets, supplied with fresh air from a distance, either by hand-pumps or from the ordinary compressed air pipes, are as much used as the rescue apparatus in dealing with gob-fires, etc. One great advantage gained through the use of the rescue apparatus and smoke-helmets is that men can work right up to the seat of a fire, either using a hose for extinguishing it or digging it out, or else erecting a dam to cut off its air supply. The great saving of coal effected in this way appears to cover many times the expenditure on upkeep of apparatus and training of men. It is well known that very serious losses of coal and capital outlay often result from gob-fires in coal mines; and some of the Westphalian seams appear to be almost as liable to spontaneous fires as certain seams in this country.

At the large School of Mines at Bochum, erected and maintained by the Westphalian colliery owners for the training of colliery engineers, the students are thoroughly instructed and trained in the use of rescue apparatus and smoke-helmets of various types, and through the courtesy of Professor Heise, director of the school, we witnessed one of the practical exercises by the students in building stoppings, etc., in an atmosphere of smoke.

At the Bochum School about half the students are also trained in the use of diving apparatus. For the purposes of practical instruction there is a well containing about 100 feet of water, representing a mine-shaft full of water, within the grounds of the mining school. The training is very similar to that of gunnery officers in the British Navy. The Mining School has always divers ready to go to any mine in the district when divers are needed for work in flooded shafts, etc.

Digitized by Google

It is probable that the pecuniary advantages resulting from the use of apparatus for penetrating irrespirable atmosphere and water has had quite as much to do with their general adoption in Westphalian mines as the desire to have the means at command for saving life. There is no legal obligation in the matter; and what has been done is due to the enlightened policy of the mining companies and the initiative of individual leading mining engineers such as Mr. Meyer. The same remark in reality applies to the practice with regard to ambulance provisions and thorough watering, which were introduced in various mines long before the regulations of the Mining Board came into force.

4.—Recent Experiences in Westphalia in Connection with the Prevention of Ankylostomiasis

An account of the troubles which arose in the Westphalian Coalfield a few years ago through the spread of Ankylostomiasis and of the measures taken to eradicate the disease, will be found in a Report presented to the Home Secretary by Dr. Haldane in 1903*. It only remains to add a few words as to the success of these measures.

The infection has now practically disappeared except in one or two collieries where special difficulties have prevailed. For a fuller account we must refer to a recent report† written chiefly by Prof. Löbker of Bochum and Dr. Hayo Bruns, Director of the Public Health Laboratory at Gelsenkirchen. At nearly all the collieries where a large percentage of men were affected a few years ago, there now remain only a few cases of slight infection, not sufficient to have any affect on health. The preventive measures still remain in force, including occasional medical examination of the men and the strict enforcement of sanitary precautions underground.

The infection of the coalfield seems to have developed very gradually and insidiously during a number of years until it began to produce very serious effects about five years ago. We think it our duty to point out to the Commission that there is no sufficient evidence, either positive or negative, as to whether similar infection may not now be spreading in some of the English coalfields. All that is definitely known is that infection undoubtedly exists, broadcast in Cornish mines, where numerous and extremely serious cases of the disease remained unrecognised by the local medical men for many years; that no trace of infection was found by Dr. Boycott in two Midland mines—one a colliery and one a metalliferous mine—which he examined for the Home Office‡, and that no cases of local origin have hitherto been reported by medical men in any English colliery district. The negative evidence furnished by the latter fact indicates that there is probably no serious outbreak of Ankylostomiasis in any English coal mine; but it would be folly to infer without more reliable evidence that the infection is absent, or, if present to a small extent only is not increasing. It appears to us to be a matter of importance to ascertain what are the facts with regard to Ankylostomiasis infection in English coal mines.

5.—Testing of Safety Lamps, Explosives, and Electrically Driven Machines.

Safety lamps are compulsory in Westphalian collieries underground except at landing places at a downcast shaft; and open lights are only permitted there if all the woodwork is kept watered to prevent danger of fire.

Lamps must be provided with an arrangement for lighting from within; and in consequence, perhaps, of this regulation benzine lamps seem to be everywhere used. The official regulations with regard to the safety of lamps do not seem to be very complete; and a somewhat unsafe lamp would apparently comply with them. There are no regulations as to official testing of types of lamp.

The use of gunpowder "and similar explosives" is forbidden in the Westphalian mines, only "safety explosives" being allowed; and there are strict regulations as to examining for gas, and watering up to 22 yards, before each shot. The regulations do not definitely specify what is meant by a safety explosive, and there is no "permitted list" as in England, nor are there any official tests of safety explosives, though many tests are carried out for the mine owners at an experimental station near Gelsenkirchen. In these experiments the results are arranged, not according to whether an explosive fails or not in one particular kind of test, as in England, but according to the amount of each explosive needed to fire an explosive mixture of gas or dust and air. With even the safest explosive, when not stemmed, it is easy with a sufficient charge to fire an explosive mixture of fire-damp and air; and with those explosives classified as less safe this result is obtained with a smaller charge.

It must, of course, be borne in mind that in consequence of the watering regulations the question of safety explosives and lamps is less important in Westphalia than in England.

---

* Ankylostomiasis in Westphalian Collieries, 1903. Cd. 1,845.

† "Ueber das Wesen und die Verbreitung der Wurmkrankheit." *Arbeiten aus dem Kaiserlichen Gesundheitsamte*, Band XXIII., Heft, 2, 1906.

‡ Report on the diagnosis of Ankylostomia Infection, 1904. Cd. 2,066.

Digitized by Google

The Gelsenkirchen Experimental Station has very complete arrangements for the testing of lamps, and recently a number of important experiments have been carried out by Bergassessor Beyling on the best means of obtaining safety from the ignition of gas by the sparking of electric motors. Through his courtesy we were enabled to see some of the experiments, which he described in a recent paper published in "Glückauf." (Nos. 1–13. 1906.)

Electrically-driven winding and other machinery above ground is now rapidly coming into use at Westphalian collieries with great success, but the difficulties connected with sparking have hitherto restricted the use of electricity under ground.

6.—Provision of Change Houses and Shower Baths.

By the mining regulations every colliery has to provide a proper building with suitable arrangements for all the men employed under ground to change their clothes on going to and coming from work. In connection with the change-house, shower baths with sufficient warm water to accommodate without delay the whole of a shift as it comes up must be provided, so that every miner can go home clean and in clean clothes. These change-houses and baths are used by all the men. Such a thing as a miner covered with coal dust and black from head to foot is never to be seen outside a colliery in Westphalia.

We should like to add that we found every colliery plentifully supplied with baths and hot water for use of the mine officials, visitors, and mine inspectors, etc. Clean overalls, etc., were also provided for visitors. At very few English collieries is such a thing as a bath to be had, either for colliers or for anyone else, and we heartily commend the more cleanly and comfortable German arrangements to the attention of colliery owners at home.

In concluding this Repert we desire to acknowledge the valuable help afforded to us by Dr. König, British Consul at Düsseldorf, and the great kindness shown us at the collieries we visited, the officials of which spared no trouble in enabling us to examine all the arrangements.

J. S. HALDANE
HENRY HALL.
W. N. ATKINSON.

Digitized by Google

Digitized by Google

INDEX.

Digitized by Google

Digitized by Google

INDEX.

NOTE.—*When a series of questions refer to the same subject the number of the opening question only is given.)*

Aberaman Colliery, inspection of by men, length of time occupied in, 8159.

Abertysswg Explosion:
- Coroner's inquest:
  - Adequacy of, views on this point, 1126, 1138, 1144.
  - Verdict, possibly different, if evidence had been placed before body of experts, 1132, 1143.
- Inspector's advice to management as to men working in gas, 1108, 1138.
- (*See also title* Maclaren Colliery Explosion.)

Accidents in Mines:
- Age of men in relation to accidents, 6285, 8438.
- Apparatus for raising and lowering men in event of, section of Coal Mines Regulation Act referring to, 7043, 8956, 8968, 10085.
  - (*See also title* Kibble.)
- Closing or flooding mine in event of, suggestion as to jury of managers for decision as to, 9667.
- Collection of statistics relating to, 18.
- Comparison of coal mines and metalliferous mines with regard to, 245.
- Compensation in fatal cases, 8260, 8899.
- Inspection of mines after fatal accidents, 3466, 3507, 3853, 5674, 5975, 7177, 8913, 9026, 9029.
  - Durham and Northumberland, inspection after, 5975, 6591, 6605.
  - Home Office inspector, character of inspection made by, after, 8572.
- Investigation into:
  - Acts of Parliament regulating:
    - Coal Mines Regulations Act (1887), Sections 45 and 48, 211, 213, 262, 941.
    - Fatal Accidents Inquiries (Scotland) Acts, *see title* Scotland, *subheading* Accidents, Investigation into.
  - Board or court, assisted by experts, substitution of, for coroner's inquests, views as to this suggestion, 4795, 6311, 6348, 8226.
  - Coroners' inquests:
    - Adequacy of, views as to, 219, 262, 604, 607, 1125, 1138, 1525, 1795, 1832, 2094, 2099, 2100, 2285, 2539, 2832, 2908, 3072, 3362, 3742, 3884, 3890, 4171, 4478, 4792, 4923 5887, 6309, 6347, 6832, 7033, 7777, 8195, 8211, 8477, 8894, 8904, 9663.
    - Adjournment would be ordered if necessary, 8902, 9666.
    - Comparison with court of enquiry, 213, 1799.
    - Compensation, amount of and consideration of, 8260, 8899.
    - Constitution of another court of appeal, views as to whether desirable, 216, 219.
    - Counsel for Home Office, appointment of and reports to Home Office, 211, 215, 610, 2194, 2199, 4795, 4797.
    - Hurried manner in which inquests are held owing to necessity for viewing the body, and suggestion for abolition of this custom, 8899, 8904, 8910, 9665.
    - Inspectors of mines, attendance at, and reports to Home Office, 453, 679, 1312, 1834, 2194, 2199, 3418, 4795, 5674, 6591, 6605.
      - Assistant inspectors, attendance at, 1312, 3419, 5678.
    - Injury but not death, question as to enquiry in cases of, 8923.
    - Jury of experts, views as to whether desirable, 1132, 1155, 1174, 1802, 1832, 2286, 5183, 8226.
    - Manager, prosecution of, does not depend on verdict, 2416.
    - Men's representatives, attendance at, 3489, 3493, 3507, 9663.
    - Number of inquests, 1311.
    - Omission of the inquest if body is not found, 8910.
    - Publicity, advantages of, 3362.
    - Reports on workmen's inspections of mines, use of as evidence, 396, 5256, 6983, 10056
    - Shorthand notes taken at, 217, 8907.
  - Scotland, procedure in, *see title* Scotland, *subheading* Accidents.
  - Second enquiry:
    - Act of Parliament regulating:
      - Coal Mines Regulation Act (1887), Section 45, 211, 213, 262, 941.
    - Advantages of, views on this point, 604, 1135, 1795, 1798, 1804, 2094, 2098, 2107, 2198, 2285, 2417, 2835, 3072, 3343, 3884, 4792, 4927, 8211, 8321, 8477, 8895.
    - Cases justifying a second enquiry, instances of, 1796, 2108, 2198, 2285, 2829, 8212, 8232.
    - Decision as to necessity for, powers of Secretary of State as to, and views of witnesses as to whether other method of decision is desirable, 212 219, 1142, 1833, 3743, 3886, 4167, 4175, 4245, 5182, 5885, 6831, 7776, 8898, 9661.
    - East Scotland District, no case of in, 2829.
    - Lancashire, section 45 has never been put in force in, 2288.
    - Manchester and Ireland district, working of in, 2098, 2288.
    - Miners' requests for, and decision of Secretary of State as to granting, 212, 216, 219, 220, 1154, 4473.
    - Number of enquiries, 211, 1526, 2288, 2290, 3742, 3744.
- Notification:
  - Decision as to necessity for rests with manager, 58, 63.
  - Standard laid down by Notification of Accidents Bill, 62, 84.
  - Suggestions as to, 4509.
- Number of:
  - Metalliferous mines, as compared with coal mines, 245.
  - Position, general, as to (whether increasing or decreasing), 6284, 6521, 9815, 10079.
  - Tables handed in, 16, 84.
  - Variations in different districts, 19, 47, 48, 1575.
- Unskilled labour in relation to accidents, *see title* Unskilled Workmen.
- (*See also titles* Explosions, Haulage, Timbering, Shafts, Ventilation, *and* Watering, *and for accidents in particular districts see titles of those districts, subheading Accidents.*)

Age of Miners:
- Accidents, age in relation to, 1089, 6285, 7731, 8438.
- Boys, employment of, suggestions as to precautions, 9645, 9712.
- Limit for employment alone at the face, non-existent, 1794.

Agents:
- Abolition of this post, views as to whether desirable, 9720, 9721, 10081.
- Advantages arising from appointment of, and views as to compulsory appointment, 1956, 2263, 2267, 2330, 2650, 3060, 4131.

Digitized by Google

Appointment of under-manager by objections to, 9716, 10048.
Commercial matters, limitation of duties to, suggestion as to, 2646, 2959.
Interference with management of Colliery, instances of, 3283.
Managers' certificates frequently held by, 3875.
Prosecutions of, 2334, 2945, 2946, 2953, 3302.
Qualifications, 1954, 2273, 2327, 2336, 2645, 2649, 2954, 2960, 3134, 3547, 3558, 3562, 3875, 4131, 4139, 10082.
Responsibility of, views as to, 1954, 2644, 2649, 2941, 2947, 3392, 3545, 3551, 5134.
Status of, as compared with manager, 1954, 2332, 2648, 3551.

Albion Colliery Explosion:
Cause of: ignition of gas by electric re-lighter, 8301.
Coroner's inquest: verdict at variance with inspector's opinion, 7779, 8212.
Crossing driven in the solid, death-rate would probably have been smaller in event of, 8583.
Watering, explosion arrested by, 6390, 8294, 8297.

Altoft Colliery, Normanton, rescue gallery at, 2116.

Ambulance, *see title* Rescue Work.

Ankylostomiasis:
Account, historical, of action taken by Home Office to prevent spread of, 224.
Cornish mines, outbreak in and methods adopted for suppression of in, 224, 617, 1862.
Special Rules, 224, 617.
East Scotland district, 2854.
Foreigners, probability of cases among, views as to, 1857.
Liverpool and North Wales district, 1535, 1854, 1859.
Local authorities, action of as to, 224.
Manchester and Ireland district, 2123.
Midland district, supposed case in, proved not to be the disease, 9675.
Newcastle district, no case in, 8969.
Reports and investigations by Dr. Haldane and Dr. Boycott, 224.
Sanitary conveniences, provision of:
Dangers of imperfect sanitation, 1538, 1860, 8494.
East Scotland district, 2854.
Importance of and views as to whether compulsory provision is desirable, 224, 617, 2123.
Liverpool and North Wales district, 1860.
Manchester and Ireland district, 2123.
Men's leaders should refer to in addresses to men, 617, 3762.
Midland district, 9675.
Newcastle district, 8970.
Old stalls in process of being filled up, use of, 8497.
South Wales district, 4493, 5911.
Stafford district, 5911.
Wales, 8494.
West Scotland district, 5201, 5650.
York and Lincoln district, 3762.
Slow development of, 1860.
South Wales district, no case in, 5910.
Special Rule, suggestion as to, 1538.
Watering, spreading of disease by, alleged, 90, 560.
West Scotland district:
Case, supposed, in Lanarkshire, 225, 5200, 5654, 5666.
Letter from Lanarkshire County Council as to, 224.
No symptoms of at present time, 5200.
Westphalian mines, outbreak in, and report by Dr. Haldane on, 224, 2854, 5776.
York and Lincoln district, no cases in, 3762.

Arley Mine, timbering system in force at, 2029, 2190, 2463.

Arniston: arbitration as to two managers to one system of ventilation, 8744, 8749, 8758.

ATKINSON, Mr. J. B., Inspector of Newcastle district, evidence of, 8588–9459.

ATKINSON, Mr. W. N., Superintending Inspector of the Swansea and Cardiff district, evidence of, 5668–6564.

Baddesley Mine, accident at, lives lost in attempts to save life, 9667, 9671.

BAIN, Mr. R. D., Inspector of the Durham district, evidence of, 6565–7548.

Baker *v.* **Carter,** judgment in, as to responsibility of owner, 35, 338, 342, 343.
Facts in the case, 342.
Quotation from Baron Cleasby's judgment, 343.

Baths, provision of, at mines, attitude of miners as to, 5968.

Belgium:
Inspection of mines by men, grant for, 9487.
Safety lamps, regulations as to, 5808, 9590.

Bills, Parliamentary:
Miners' Federation Bill, 1197, 1251, 1721.
Notice of Accidents Bill, 62, 84, 177, 4469, 4511.
Steam Engines (Persons in Charge) Bill, 162, 419, 7124, 7282.

Blackwell Explosion, description of, and of extent of watering before, 9537, 9943.

Blaendare Explosion, 383.

Boilers:
Examination of:
Existing rule as to, and suggestion as to adoption of similar rule to that in Factory Act, 1901, 159, 593, 1498, 2049, 2743, 3711, 3740.
Frequency of and adequacy of, views as to, 591, 594, 2049, 2051, 2057, 2740, 2745.
Insurance companies, inspection by, views as to, 1499, 2052, 2740.
Report after cleaning, suggestion as to, 594 3711.
Explosions of:
East Scotland district, no case in, 2746.
Southern district, 594.
Insurance, extent of, 2053.

Boring:
Accidents in relation to, 4789.
Burnside boring apparatus, 8283.
East Scotland district, inspector's advice to managers, 3288.
General Rule 13 as to, amendment of, views as to whether desirable, 662, 1693, 3291, 4685, 7772, 8274.
Hunter boring machine, 3288.
Undersea workings, boring in, 9000, 9006, 9009, 9094.

Breathing Apparatus, *see title* Pneumataphors.

Bristol: Manager's certificate of competency, examination for, 7821, 8283.

Bryncoch Explosion, 115.

Bye-Laws:
Breach of, penalty for, 1660, 2310, 7194.
Publication of, discontinuance of, 2450, 2454.

Cadeby Main Colliery:
Dust:
Amount per day, 3576.
Prevention:
Fans and pipes for, 3576, *and Plan.*
Cost of, 3586.
Sale of coal dust, 3576, 3587.

Cambrian Collieries Explosion:
Report on, 6431.
Returns traversed by, 6402, 6404.
Watering, extent of, 6431.

Camerton Colliery Explosion, 1227.

Cannock Chase Code, Special Rule as to safety lamps, 5803, 6205, 6206.

Caradoc Vale Colliery, accident at, 7772, 7887, 8232.

Digitized by Google

Cardiff District:
Accidents:
Caradoc Vale, 7772, 7887, 8232.
Investigation into: adequacy of coroners inquests, 7777.
Number of, 7627.
Falls of roof, 5839, 7738.
Age of men, employment of boys, etc., 7731.
Ankylostomiasis:
No case of in, 7800.
Sanitary conveniences not provided, 5911, 7801, 8494, 8497.
Checkweighing:
Difficulty as to not experienced in, 8584.
Shelter for checkweighers, 8586.
Discipline:
Character as to, 7600, 7909, 8237.
Enforcement, methods of, 7601.
(*See also subheadings* Fines *and* Prosecution.)
Dust in mines, prevention:
Arching of brick, 7652.
Fans or pipes for exhaustion of dust, 7241.
Explosions:
National Colliery, *see that title.*
Explosives used in, 8066.
Fiery mines, number in, 4314.
Fines:
Advertisement by posting at pit-head, 7606.
Amount of, 7610, 7919.
Extent to which inflicted as compared with prosecution, 5713, 7603.
List of fines, examined by inspector, 7606.
Foreigners, employment of, 6539, 8450.
Haulage accidents:
Causes of, 7746, 8454.
Chains, shackles, etc., periodical annealing advocated, 7751.
Man-holes or refuges, 7744.
Whitewashed, 7745.
Space along the side of roads, 8459.
Special travelling roads, cost of construction would be heavy, 8463.
Hydraulic wedges, use of, 8351.
Inspection of mines by men:
Extent to which practised, 7580.
Employment of men working in the mine, custom as to, 7907.
Length of time occupied in, 8159.
Reports, 7900, 7904.
Value of, 7901.
Inspection of mines by mines officials:
Books or printed forms used in, wording of, 7616.
Districts, size of, 7620, 8176.
Duties other than inspection performed by fireman, 7971.
Hours of work of firemen, 7620, 7930, 8249.
Length of time occupied in, 7930, 7939, 7980.
Number of inspections during shift, 7612.
Overmen, number of, increase advocated, 7967, 7974, 7984.
Inspectors of mines (Home Office inspectors):
Adequacy of inspection by, views as to, 5673, 7565, 8145, 8152, 8561, 8581.
Clerical work, allowance for, 7572.
Omissions, question as to, 8579.
Complaints from men, number of and method of dealing with, 7989.
Districts, size of, 5676, 7570.
Hours of work, 7573.
Language difficulty, question as to, 7555.
Number of, and of assistant inspectors, question as to adequacy, 7565, 8145.
Superintending inspector of South Wales, duties of, 5669, 6146.
System of inspection, 8562, 8569, 8582.
Working miners, appointment as additional assistant inspectors, views as to, 8152.
Managers' certificate of competency, examination for, 5917, 7802, 7808, 7821, 7883.
Metalliferous mines, number of, 7836, 8142.
Number and size of coal mines, and number of men employed, 7568, 8142, 8553.
Plans:
Accuracy of, views as to, 7849, 7887, 8275.
Caradoc Vale plans, inaccuracy of, 7772, 7887.

Cardiff District—*cont.*
Prosecution of men:
Extent to which practised as compared with fining, 5713, 7601, 7910, 8238, 8242.
Matches and pipes, taking down mine, number of prosecutions for, 5472.
Swansea district, comparison with, 4314.
Prosecution of owners by inspector for failure to prosecute men when desirable, question as to, 7609.
Rescue work, 7786.
Royalty, payment by ton or acre, question as to 7897.
Safety lamps:
Explosions in relation to, 5815.
Extent to which used, 5802, 7678, 8516.
Types of, 7690.
Shaft accidents, absence of any trouble as to, 7795, 8310.
Competency of enginemen, 8310.
Shot-firing, practice as to, 8057.
Between shifts, advocated, 8344.
Electricity, use of, 6201, 8068.
Special rules:
Introduction of: consultation of men, 6494, 7763.
Single code, 7766, 8116.
Uniform code for Swansea and Cardiff advocated, 7765.
Unnecessary rules, elimination advocated, 7767.
Superintending inspector of South Wales, duties and powers of, 5669, 6146.
Timbering:
Accidents from falls of roof and sides, number of, not apparently decreased by Special Rules, 5839, 7738.
Death-rate in 1905, 8254.
Consultation of workmen before introduction of Special Rules, 6494.
Undersea workings, non-existent, 7873.
Unskilled men, employment of, 6535, 8435.
Ventilation: difference of opinion between inspector and manager as to indications shown by safety lamp, 8417, 8418, 9778.
Wagons, improved type of, introduction attempted by inspector, opposed by owners, 7664.
Watering, system in, 8359.
Cost of, 8363, 8371.
Deep Navigation Colliery, 8017.
Effect on roof and floor, 6014, 7639, 8009, 8290, 8389.
Extent to which practised, 6438, 7635, 7651, 8017, 8389.
Length of pipes, 8359.
Zone watering:
Advocated in inspector's report on National Colliery explosion, 7646.
Owners, attitude towards, 7648.
Women, employment of, 6532, 8513.

Cases, Legal:
Owners' responsibility, cases with regard to:
Baker *v.* Carter, 35, 338, 342, 343.
Caradoc Vale case, 8232.
Corfield *v.* Evans, 35, 329, 9720.
General observations as to, 767, 1363, 1604.
Home Office proceedings in a Scottish case, 35, 36, 340, 341.
Stokes *v.* Checkland, 35, 331.
Stokes *v.* Hill, 9702.
Stokes *v.* Mitcheson, 35, 336, 344, 9720.
Wynne *v.* Forrester, 35, 326.

Charter-Master System, objections to, and suggestions as to abolition of, 34, 5742, 5989, 6100, 6170, 6173, 6177, 6458.
Intoxicating liquors, evils of charter-master system in relation to, 6177.
Report on, 5752, 6173.
Stafford district, 34, 5742, 6096, 6458, *and Appendix XIV.*
West of Scotland, 5756, 6456.

Digitized by Google

Checkweighing:
Acts of Parliament regulating:
Coal Mines (Checkweigher) Act 1894, 5, 4023.
Coal Mines Regulation Act, 1887 (Sec. 12), 3820, 4030, 4054, 9015.
Appointment of checkweigher, ballot of men:
Requirements as to, under Coal Mines (Checkweigher) Act, 1894, 4023.
Deductions for dirt:
Agreement between owners and men as to, 4037, 4038*, 4045, 4054.
Coal Mines (Regulation) Act, 1887, Sec. 12, as to, 3820, 4030, 4054
Compensation to owners for bringing up of dirt, absence of, 4037, 4042*.
Difficulties with men arising from, and questions as to interpretation of the Clauses, 3820.
South Wales district, no difficulty n, 8584.
Refusal by checkweighers to undertake, 4022.
Employment of checkweighers at most mines, whether large or small, 4019.
Facilities to checkweighers, complaints as to, question as to, 4021.
Inspectors, time of, too much occupied with question of, 9012.
Shelter for checkweighers, 4761, 8586.
Meaning of, under the Act, question as to, 4024.
Warning inspectors as to danger underground, 4015.

Church Lane Colliery, Dodworth, introduction of spirit lamps, difficulty as to, 1979.

Cleveland, Special Code in, 6745.

Clydach Vale Explosion, 115.

Coal-Cutting Machinery, use of:
Electric, 3366, 6044, 7218, 8849, 9641.
Shot-firing, probable effect of on, 5557.
West Scotland district, 5553.

Coal Mines (Checkweigher) Act, 1894-5, 4023.

Coal Mines Regulation Act, 1887:
Account, general, of administration of the Act, 9.
Appointment of inspector of mines, under, 9.
New collieries, operation of, in, 2815.
Schedule 1, as to proceedings of Board of Examination for managers' certificates, 227.
Section 4, as to plans, amendment advocated, 9702.
Section 12, as to check-weighing and deductions for dirt, 3820, 4030, 4054, 9015.
Section 16, as to apparatus for raising and lowering men, 7043, 8956, 8958, 8968, 9160, 9334, 10085.
Section 19, as to division of mine into parts, 1008, 8750, 8752, 9201.
Section 20, as to appointment of manager, 37, 227, 9201.
Section 21, as to responsibility of manager and under-manager, 3390, 9350, 9717.
Sections 23, 24 and 25, as to system of examination for managers' and under-managers' certificates, 227, 1296.
Sections 34 and 38, as to plans, 1255, 1744, 2848, 5439, 5444, 5446, 6064, 6255, 6267, 6879, 7874.
Amendment by Sec. 4 of Coal Mines Regulation Act 1896, 6254.
Section 39, as to number of inspectors appointed within discretion of Home Office, 273.
Section 41, as to powers given to inspectors, question as to adequacy of, 268.
Section 42, powers of inspectors under, as to dangerous practices, 49, 86, 2791, 2798, 2807, 4804, 9324.
Watering in dusty mines, use of this section in relation to, views as to, 86, 89.
Section 45, as to formal investigation into accidents, 211, 213, 219, 262, 5885, 8925.
Section 48, as to coroners' inquests, 211, 213, 3489, 3507.
Section 49, General Rules:
General Rule 1, as to ventilation of mines, 97, 894.
Amendment of, and clearer definition of "adequate ventilation," views as to whether desirable, 876, 893, 1974, 1980, 2173, 2176, 2339, 2670, 3979, 4150, 4374, 4376, 4381, 4565, 4576, 5075, 5078, 5361, 5481, 5628, 5791, 6162, 6702, 7342, 8033, 8722, 9195, 9357, 9418, 9565, 9945, 9963, 10151, 10155.

Coal Mines Regulation Act, 1881—*cont.*
Section 49, General Rules—*cont.*
General Rule 3, as to fans, 8727, 9058.
General Rule 4, as to inspection of mines by mine officials, 33, 737, 751, 762, 1947, 5058, 5532, 6908, 8675.
Amendment, suggestions as to, 509, 511, 717, 737, 5058, 5327, 5339, 9523, 9527.
Contractor's agents, employment of, 5741, 5760, 5988.
Special Rule, failure of, to carry out this General Rule, 8861, 9040.
(*See also title* Inspection of Mines by Mines Officials, *subheading* During the Shift, *sub-subheading* Number of Inspections.)
General Rule 5, as to examination of machinery below and above ground, 2056.
General Rule 7, as to withdrawal of men in case of danger, 97, 830, 2683, 8722, 9570, 9959.
Amendment of, views as to whether desirable, 4150, 4572, 4579, 5368, 5795, 5801, 6162, 8034, 8183, 8192, 9570, 9964.
Count Herbert explosion, breach of this Rule, 5795.
General Rule 8, as to safety lamps, 75, 104, 830, 2654, 3026, 4807, 5541, 7389, 8763, 9576, 10141.
Amendment and strengthening of views as to whether desirable, 104, 1431, 4398, 5096, 5541, 5803, 6115, 6125, 6317, 7680, 7688, 8041, 8334, 10141.
General Rule 9, as to type of lamp, 104, 830 839, 1633.
General Rule 10, as to examination of lamps before use, 105, 269, 838, 3189.
General Rule 12, as to shot-firing and as to watering in neighbourhood of a shot, 89, 116, 556, 557, 806, 2003, 2180, 6188, 7228, 7234, 9601.
Inspectors' views as to whether more effective watering of roads could be secured under, 89.
General Rule 13, as to boring, amendment of views as to whether desirable, 662, 4685.
General Rules 14 and 15, as to manholes or refuges, 5404, 5410.
General Rule 17, as to width of roads, 6140.
General Rule 21, as to timbering, 5392.
Return to this rule views as to whether desirable, 4432, 4440, 4591, 5392.
General Rule 22, as to timbering, 6175, 6774.
General Rule 24, as to appointment of engineman, 162.
General Rule 28, as to use of single link chain, 2036.
General Rule 30, as to breaks on winding engines, 8845.
General Rule 32, as to steam boilers, 159, 2050.
General Rule 34, as to provision of ambulances, 222, 5900.
General Rule 36, as to discipline, 4498.
General Rule 38, as to periodical inspection on behalf of workmen, 9, 16, 19, 64, 695, 4948, 6613, 6901.
Definition of "practical working miners," 64.
Prohibition by manager, question as to, 6617.
(*See also title* Inspection of Mines by Men.)
General Rule 39, as to employment of experienced workmen at the working-face, 362, 3951, 4934, 6466, 8539.
Decision of Court in case arising out of this rule, 8541.
Sections 50 and 51, as to maintenance of supervision and discipline by the management, 29, 774, 1952, 2398, 5720, 6629.
Extent to which power of prosecuting is exercised, general observations as to variation in different districts, 29.
Sections 51 to 58, with regard to establishment of Special Rules, 200, 304, 923, 924, 925, 2394, 3214, 8097.
(*See also title* Special Rules.)
Section 66, as to report to inspector of results of prosecution, 4913.
Section 75, as to relative positions of agent and manager, 1954, 2648.

Digitized by Google

Coal Mines Regulation Act, 1896:
Lights and lamps, description to be used, provision as to Special Rule for, 104 9576.
Section 1, as to Special Rules for watering of mines, 87, 2345.
Section 4, as to plans, 6254, 7323.
Section 6, as to regulation of use of explosives, 87, 4519, 9605.
Explosives in Coal Mines Order under, 116, 125, 787, 796, 2342*, 4520.

Coal Owners, *see title* Owners.

Commission, *see title* Royal Commissions.

Consolidated and Amended Coal Mines Act, 1887, *see title* Coal Mines Regulation Act, 1887.

Cornwall:
Ankylostomiasis, outbreak of, and measures taken for its suppression, 224, 617, 1862.
Miners' phthisis in, 9449, 9451.
Timbering system in, 9262, 9615.

Coroners' Inquests, *see title* Accidents, *subheading* Investigation, *sub-subheading* Coroners' Inquests.

Count Herbert Colliery Explosion, 4794, 5795.

Courrières Colliery:
Area of underground workings, 8122, 8127.
Explosion at:
Cause of, 1227, 5763, 5964.
Haulage roads traversed by, 6410.
Possibility of similar explosion in England, views as to, 6416, 7535, 8122, 8127.
Underground communication, length of and effect of on extent of loss of life, 5763, 7793, 7881, 8295.
Timbering system in force at, 143, 144, 583, 5847, 5855, 8814, 8820.
Death-rate from falls of roof, decrease since introduction of, 143, 145, 146, 583, 5845, 7429, 8817, 8820.
Comparison with English death-rate, 143, 145, 146.
Report on, 143, 385, 2461, 5763, 5964.

Cumberland:
Ankylostomiasis, examination of mines for traces of, 8970.
Hematite mines, 9426, 9430.
Inspection of mines by men in, 9187.
Lead mines, 9446.
Rescue work: proposals as to ambulance corps, 8927.
Special Rule, 8888, 8890.
Timbering, Special Rule, 8807, 8808.
Undersea workings, 5959, 9000.
Unskilled workmen, employment of, questions as to, 9304.
Women, employment in, 9343.

Cwmbran Colliery Arbitration:
Cost of, 855.
Decision in favour of use of safety lamps, and its effect, 855, 1181.
Output, effect on, 856.

Dangerous Mines: marking off by inspectors, views as to, 4755, 4756, 4837, 4841.

Death Rate from mining accidents:
Average, in United Kingdom, 8823.
Charter master system in Staffordshire, apparent effect of on death rate, 34.
Metalliferous mines, comparison with coal mines as to, 245, 246.
Tables as to death rates from accidents generally, 16, 17, 84, *and Appendices III., V., VI., VII., VIII., IX.*

Dechmont Colliery:
Strike contemplated, owing to charge to men in respect of safety lamps, 5635.

Deep Navigation Colliery, extent of watering in, 8017

Definition of a colliery, 3360.

DELEVINGNE, Mr M., Principal Clerk, Home Office, evidence of, 1–421.

Depth at which mines are worked, increase in, 8011.
Heat, greater in deeper mines, 8014.
Watering in relation to, 8011, 9218, 9221, 10075.

Dinnington Explosion, 8775, 9137.

Discipline in Mines:
Act of Parliament regulating: Coal Mines Regulation Act, 1887 (Secs. 50 and 51), 29.
Enforcement of, methods of, 29, 2448, 2618, 2892, 2899:
Apology for breach of the Act:
Advantages of, 504, 1220.
Enforcement, questions as to, 3532.
Legality of, 1218, 1220, 1222.
Methods of, 504, 681, 1223.
Objections of men to, 3534, 3861, 4106.
Southern district, enforcement in, 502, 504, 1217, 1222, *and Appendix XII.*
Bye-laws, breach of, penalty for, 1660, 2310.
Cautioning men in very trivial cases, suggestion as to, 3016.
Dismissal, views as to, 2311, 5731.
Fines, *see that title.*
Inspector's advice to Managers, 2623.
Magistrates, wider discretion as to fining or prosecution advocated, 377.
Manager should have discretion as to, 2313, 2317.
Prosecution of owners or managers, *see that title.*
Prosecution of men, *see that title.*
Protection of workmen from oppression, necessity for, 2313.
Searching men before going down mine for matches, pipes, &c., 5462, 7326, 7714.
General rule as to, advocated, 5297.
Omission in some mines, 4580.
Strengthening of powers as to, advocated, 4494.
Suspension, effect of, 2889, 2900.
Extent to which discipline is maintained:
Metalliferous mines, comparison with coal mines, 6863.
Southern district, improvement in, and its effect in reducing number of explosions, 519.
Variations in different districts, general observations as to, 19, 29, 30.
Fochriw explosion, report of, on discipline, 30, 398.
Leader's advice to men on subject of discipline, importance of, 1153.
Reports, references to, in:
Annual General Report (1903–4) and Sir Clement Foster's (1901–2) comments on defective discipline in South Wales and Scotland, 30, 373.
Reports of breaches of discipline usually made by one of the mine officials, 7072.
Supervision of owners:
Act of Parliament regulating—Coal Mines Regulation Act, 1887 (Secs. 50 and 51), 29.
Charter-master system, effect of, *see title* Charter-Master System.
Extent to which powers of supervision are exercised, variations of in different districts, 19, 29.
Importance of effective supervision, 47.
Inspection of mines by mine officials, *see that title.*

Doors of Iron as a means of arresting explosion, experiment in Midland district 9541, 9758.

Durham District:
Accidents:
Death-rate, 5703, 6754.
Fall of roof and sides, number of, 6749, 7010.
Death-rate from, 7717.
Haulage and shaft accidents, 6782.
Inspection of mine by men after, 3852, 6593 6605.
Investigation: coroners' inquests, 3499, 8912.
Lamps, accidents due to, after examination of lamp, 6731.
Number of accidents generally as compared with other districts, 7337.
(*See also subheading* Explosions.)
Agents' qualifications, 3560.
Ankylostomiasis:
No case of in, 6847.
Sanitary conveniences, none provided, 6845

Digitized by Google

Durham District—*cont.*
Checkweighing: "laid out" system, 4048.
Discipline:
Apologies, 3534.
Character as to, 6636, 6639, 6906, 7333, 7079, 8638, 9039.
Enforcement, methods for, 6622.
(*See also subheadings* Fines *and* Prosecution.)
Searching men before going down mine, for matches, explosives, etc., 7326, 7714.
Dusty mines in, 6021, 6027, 6920.
Westrumite, experiment with, 6693.
Electric coal-cutting machinery, use of, 7218.
Engineers' Association, certificates issued to engineers by, 7281.
Explosions:
Number of, 6656, 6919.
Wingate explosion, 7447.
Inspection of the mine, 7069.
Watering, efficient, might have prevented explosion, 6656, 6659, 6663, 7085.
Fines:
Advertisement of fact that man has been fined, not practised, 7192.
Amount of, 7136, 7200.
Comparison of discipline in mines where fining is practised and where prosecution is practised, 6636.
Disposal of, method of, 7191.
Extent to which practised, 7188.
List of, examination by inspectors of mines, 6992.
Offences for which practised, 6637, 7067.
Foreign workmen, employment of, questions as to, 7360.
Gas in pits, extent of, 9419.
Haulage accidents, 6783, 6940.
Automatic catches, 6784.
Causes of, 7742.
Number of, and death-rate from, 7740.
Refuges (man-holes), whitewashing not practised in all instances, 6792.
Hours of work in: length of shift, 7112.
Inspection of mines by men:
Accidents, fatal, inspection after, practice as to, 3852, 6593, 6605.
Cost of, borne by the Miners' Union, 6601, 6607.
Extent to which practised, 5702, 5705, 6077, 8628, 9025, 9187.
Owners and managers, attitude towards: intimidation of men making the inspection, improbable, 7402.
Payment to men making inspection, 6599, 6607.
Qualifications: men of same mine usually appointed, 6596.
Reports to Home Office inspector, 7170.
Value of, and efficiency of the inspection, 3466, 6591, 6610.
Inspection of mines by mines officials:
Adequacy of, 8678.
Districts, size of, 6652, 7001.
During shift, number of inspections, 9246.
Hours of work of firemen, 7004.
Special Rule as to, 8669.
System described, 8678.
Inspectors of mines (Home Office):
Adequacy of inspection: number of inspections, 6572, 6950, 6964, 6988, 7145.
Assistant inspectors:
Number of: adequacy of, when posts are filled up, 6572, 6587, 6958, 7084.
Vacancy, delay in filling up, 6572, 7048.
District, size of, 6572.
Clerical assistance, allowance for, 6579.
Plans, duties as to, 6875.
Manager's certificate of competency, Examination Board, working of, 6851.
Metalliferous mines, number of, 6861.
Plans:
Accuracy of, questions as to, 6872, 6954, 7320.
Duties of Home Office inspector in cases where accuracy is questioned, 6875.
Qualified men employed for making new plans, 6957.
Prosecution of men, 6622:
Extent to which practised as compared with fining, 6631, 6635, 7065.
Offences for which prosecuted, 7065, 8650, 8662.

Durham District—*cont.*
Prosecution of owners or managers:
By inspectors, questions as to, 7178.
By men, results of, 7143.
Rescue work and appliances, 6835, 6841, 6951, 8928.
Safety lamps:
Extent to which used, 6715, 7386.
Screw locks, gradual abolition, 6722.
Type used, 7701.
Shaft accidents:
Engine-man, efficiency of, 6798.
Number of, 6796.
Safety-catches, question as to, 6800.
Shot-firing:
Between shifts, practice as to, 7709.
Electricity, firing by, 7254.
Fuses, 7255.
Special Rule as to, 5837, 6735.
Special Rules:
Consultation of men: joint committee of owners and men, will probably be formed for revision of rules, 6819, 6945.
Number of codes, and suggestion as to amalgamation, 310, 358, 6744, 6828.
Technical institution, 7158.
Timbering:
Accidents from falls of roof, number of, 7010, 7717.
No marked increase in, since introduction of Special Rules, 7428.
Cost of, 7729.
Deputies, timbering by, system and Special Rules, 4436, 5849, 6763, 7006, 7017, 7206, 9247.
Distances set by managers, 6779.
Special Rules, 3699, 7006, 7719.
Definition of a "support" under, 7422.
Obscurity of Special Rule, alleged, 9252.
Squeeze, amount of, 7727.
Withdrawal of men in cases of danger, rule as to, 3699.
Tonnage worked, amount of, increase in, 6754.
Undersea workings, 5959, 6895, 7127, 9000.
Thickness of crust and manner in which shafts dip seawards, 6895, 7128.
Unskilled men not allowed to work alone in the working face, 7025, 9304.
Ventilation, adequacy of: withdrawal of men when cap shows on lamp, 6931.
Watering:
Cost of, 8371.
Difficulties of: effect on roof and sides, 6694, 7544.
Extent to which practised, 6664, 6686, 6691.
Wingate explosion, watering in relation to, 6662, 6675.
Women, employment of, extent of, 7350.

Dust in Mines:
Cardiff district, 7241, 7652.
Classification of dusty mines, difficulty of, 1987.
Courrières explosion, *see that title.*
Dangerous character of dust as compared with gas, 1555, 1559.
Durham district, 6021, 6027, 6693, 6920.
East Scotland district, 2667, 2704.
Explosions caused by:
Amount of dust required to create an explosion 1848, 4763.
Blackwell explosion, 9537, 9943.
Causes of explosion, 6921, 8518, 8689, 9047, 9055.
Experiments as to, 5983, 5991.
Number of, 85, 1374, 1381, 5963.
Seaham Colliery explosion, *see that title.*
Southern district, 1227.
Timsbury, 7475.
Watering, arrest of explosions by, *see title* Watering.
Inflammability of different kinds of dust, comparison and experiments as to, 1987, 5783, 6022, 6023.
Liverpool and North Wales district, 1404, 1561, 1758, 1842.
Manchester and Ireland district, 1981, 1986, 1990.
Mixing coal dust with air carrying gas, experiments as to, advocated, 1552.
Newcastle district, 8683, 8700, 8702, 8714.

Digitized by Google

Dust in Mines—*cont.*
Prevention or removal of by other methods than watering:
Account, general, of various methods, 86, 9414, 9415.
Summary of methods other than watering, 90, 91, 9276.
Arching of brick, 90, 3591, 7646, 7652, 8400, 8686, 9537, 9943.
Brushing away, 7245, 8020.
Chloride of lime, use of, views as to, 1405.
Cost of, 1405.
Clearing off bars and baulks on haulage roads, 3588.
Compulsion as to, views as to, 3585, 4531, 9050, 9224, 9358.
(*See also title* Watering, *sub-heading* Compulsory.)
Covering shafts, objection to, 8411.
Discretion to owners as to methods of, advocated, 9224.
Dumb drift, driving down downcast shaft, views as to, 8411, 9454.
Fans and pipes for collection of dust, views as to, 1990 (*and Plan*), 3568, 4535, 7241, 7662.
Cadeby Main Colliery, use in, 3579 (*and Plan*), 7240.
Cost, 3586.
Sale of coal dust, 3576, 3587.
Gunpowder, prohibition, 5112, 5830.
Increased attention to, advocated, 4146, 4148, 5963, 6668, 7087, 8702, 8708, 8713.
Inspectors' powers as to, increase advocated, 8702.
Purification of air, 3583
Roadways:
Freedom from dust, suggestion as to, 8683, 8700, 9053, 9358, 9411.
Use of return airways as haulage roads, 9280.
Salt, sprinkling on floor, 1404, 1839, 3588.
Cost of, 1405.
Lancashire experiments, 1842, 1849.
Sand or stones or any non-combustible materials, sprinkling on floor, 91.
Saturation of air periodically, suggestion as to, 9280.
Screening plant, dust from, 1406, 1990, 9415.
Distance from downcast shaft, suggestion as to, 3568, 7662.
(*See also sub-subheading* Fans and Pipes.)
Removing, 4533, 8410, 8413.
Sprays in downcast shafts and on haulage roads, 3568, 3572, 7663, 8691.
Steam jets in downcast shaft, 3572.
Wagons:
Dust-tight, views as to, 91, 1405, 3595, 3883, 4267, 4680, 5781, 9278, 9415.
Iron wagons, 1981, 9278.
Universal Colliery Explosion, Report on, by Professor Galloway, as to defective trams and tubs, 91.
Velocity of air, reduction in, suggestion as to, 9279.
Watering in-bye or as they go along, 91, 93, 561, 1406, 1981, 3600, 3879, 4366, 6701, 7670.
Whitwood Silkstone Colliery, tub adopted in, plan of, 3600.
Watering, *see that title.*
Westrumite, experiments with, 6688, 6693.
Cost of, 6690.
West Scotland district, 5064, 5359.
York and Lincoln district, 3565, 3568, 3585, 3603.

East Scotland District:
Accidents:
Edinburgh and Fifeshire, accidents most frequent in, 2774.
Falls of roof, number of, 2601, 3010.
Investigation into:
Procedure, adequacy of, witness's difficulties as to, etc., 2539, 2832, 2908, 3072, 3362.
Publicity of inquiry, value of, 3362.
Second inquiry, no experience as to, 2829.
Number of, 2652.
Ankylostomiasis, no cases of, 2854.
Agent:
Interference with management of colliery, cases of, 3283.
Responsibility of, 2644.
Boilers, examination of, 2740, 2743.

East Scotland District—*cont.*
Discipline:
Enforcement of, 2618, 2892, 2899.
Inspector's advice to managers as to, 2623.
Suspensions, adequacy of, in promoting discipline, 2900.
(*See also subheadings* Fines *and* Prosecution.)
Dusty mines, number of, 2667, 2704.
Electricity rules, interpretation of, 2591.
Engagement and employment of men, 3396.
Contractor, engagement of men by, legality of, 3397.
Explosions:
Accidents from, 2603.
Number of, 2652.
Slight explosions, number of and cause of, 2654.
Explosives:
Gunpowder, use of, in shale mines, 3151.
Kinds used, 3148.
Purchase by men from owners, 2717, 3149.
Stores, provision of, 2719.
Storage in miners' houses, 3152.
Fines:
Extent of practice, 2620.
Inspector's advice to managers as to, 2620.
System not popular with the men, 2905.
Inspectors of mines:
Adequacy of inspection, 2526, 2534, 2587, 2993, 3049, 3268, 3303.
Clerical work:
Amount of, and time taken by, 2567, 2571, 2581.
Annual statistics, preparation, view whether present system should be continued, 2589.
Assistance and remuneration, 2572.
Increase of, effect on work of inspection, 2569.
Coroners' inquests, attendance at, 2539.
District, size of, 2525, 3047, 3377.
Electricity, assistance as to, views as to whether desirable, 2596, 2882–5.
Number of, increase of, views as to whether necessary, 2529, 2886.
Quarries, adequacy of inspection, 2526, 2529.
Inspection of mines by men:
Exercise of power, extent of, 2598, 2600, 2606, 2889, 3255, 3260.
Value of and efficiency of, 2604, 3381.
Inspection of mines by mines officials:
Adequacy of, views as to, 2634, 2640, 3003.
Districts, too large for adequate inspection 2635, 3119.
Hours of work of firemen, 3129.
Number of inspections during shift, Special Rule as to, previous to 1867, 2641.
Manager's certificate of competency, examination for:
Adequacy of present system, 2872
Ambulance certificate, decision of Examination Board as to candidates holding, 2844.
Candidates' experience, investigation into, 2881.
Fiery mines, practical knowledge, compulsory, 2862-3.
Number of candidates, 2856.
Standard of: number of passes, etc., 2857, 2858, 7826.
Metalliferous mines: manager's certificate of competency, views as to whether necessary, 2873.
Plans:
Accuracy of, views as to, 2848, 3287, 3289.
Checking of, 2851.
Prosecution of men by owners:
Advantages and disadvantages of, as compared with fining, 2625, 2903, 3113.
Laxity of owners as to enforcement of, 2895.
Number of prosecutions, 2618.
Payment of expenses of defence by Miners Union, 2626.
Prosecution of owners, 3144.
Railway sidings:
Accidents, cause of, 2770.
Increase in room, disposition of owners as to, 2771.
Rescue work and appliances:
Ambulance classes and instruction, 2842.
Rescue corps and station: establishment at Cowdenbeath, proposal as to 2845.

Digitized by Google

East Scotland District—*cont.*
Safety lamps:
Examination and testing before use, 2692, 2696.
Explosion caused by defective lamps, 2694.
Special Rules as to, 2690.
Withdrawal of, when introduced, opinion held as to, 2659.
Shaft accidents:
Bars or gates at end of cage: witness' advice to managers as to use of, 2764.
Breaking of winding rope:
Accidents from, 2747, 2769.
Safety hooks and catches, number in use, and efficiency of, 2767.
Number of fatalities and persons injured, 2747.
Overwinding, 2747:
Arresters to prevent, use of, 3205.
Inspector's advice to managers as to use of, 2758.
Cause of, 2753.
Enginemen, competency of, 3071, 3313.
Cases of enginemen dying whilst in charge of engine, 3325.
Shale mines: number of shots fired annually in, 2709.
Shot-firing:
During shifts, practice as to, 2716.
Fuses, types used, 3037.
Lighting of shots, practice as to, 3154.
Miss-fire shots: Special Rule as to, 2709.
Number of shots fired simultaneously, 2709, 3031, 3355.
Prohibition during shift, 2703.
Special Rules:
Arbitration, lengthy procedure of, 2809.
Introduction of, 2818, 2930.
Translation into foreign languages, 3404.
Consultation of men as to, not practised, 3341.
Number of codes, 2927, 2932.
Timbering:
Accidents from falls of roof and sides, 2601.
Distance between props, cause of accident, 3191.
Drawing of props, 2732.
Special men for, suggestion as to, 2727.
Special Rules as to, 2724, 8806.
Accidents from falls, no reduction in numbers since introduction of, 2725, 2734.
Meetings held by inspector for explanation of, 2726, 3190.
System of and inspection by firemen, 3021.
Undersea workings:
Safety and security of, difficulties as to, etc., 2775, 3218, 3332.
Unskilled workmen:
Foreigners, employment of, 3402.
Ventilation:
Adequacy of, difficulty of satisfying magistrates as to, 3164.
Safety lamps, indication furnished by, 2674.
Stopping or slowing of fans at night, 2670.
Watering:
Extent and adequacy of, 2667, 2962.
Methods adopted, 2667, 2967.
Women, employment of, 9344, 9346.

Ebbw Vale Explosion, cause of, 6425.

Education Acts, provisions of, bearing on employment in mines, 9.

Elba Colliery Explosion:
Cause of, 97.
Coroners' inquests, adequacy of, views as to, 4794.
Report on laxity of discipline among men, 19.

Electricity:
Accidents from:
Coal-cutters and pumps, 3366, 6044, 7218, 8849.
Danger of electricity as compared with gas, 955.
Lamp relighters, 6041, 6336, 8301.
West Scotland district, 5347, 5349.
Yorkshire district, 3567.
Assistant inspectors, knowledge of, views as to whether necessary, 468, 3457.
Coal-cutters, electric, 3366, 6044, 7218, 8849, 9641.
Lamp relighters, 6041, 6336, 8301.
Special Rules, 19, 200, 1901, 2591, 5348, 5359, 6202, 7226, 8849, 8855.

Employment of Children Act, 9.

Engagement of men, 3396.

Engine-men, *see title* Shafts, Accidents in, *subheading* Overwinding, *sub-subheading* Enginemen.

Escape Shaft, properly slided, suggestion as to, 8938.

Examinations for managers' certificates of competency, *see title* Managers' Certificate of Competency.

Explosions:
Abertysswg explosion, *see that title.*
Albion Colliery, *see that title.*
Blackwell explosion, 9537, 9943.
Blaendare explosion, introduction of safety lamps after, 383.
Bryncoch explosion, due to bad type of safety lamp, 115.
Book on, by Mr. J. B. and Mr. W. N. Atkinson, 6351.
Cambrian Collieries, *see that title.*
Camerton Colliery explosion, ignition of dust by blasting, 1227.
Clifton Hall explosion, resulting from opposition to use of safety lamps, 854.
Courrières Colliery, *see that title.*
Clydach Vale explosion, inspector's report as to safety lamps, 115.
Count Herbert Colliery explosion, adequacy of coroner's inquest, 4794, 5795.
Death-rate from, 16, 84, *and Appendix Tables* 1, 2 and 5.
Dinnington explosion, 8775, 9137.
Doors of Iron as a means of arresting explosions experiments as to, in Midland district, 9541, 9758.
East Scotland district, 2602, 2652.
Ebbw Vale explosion, 6425.
Elba Colliery explosion:
Cause of, 97.
Coroner's inquest, adequacy of, views as to, 4794.
Report on laxity of discipline, 19.
Fochriw explosion:
Coroner's inquest, adequacy of, views as to, 8195.
Discipline, defective, report on, 30, 398.
Inspector's attempt to introduce safety lamps previously to, 8193, 8198.
Prosecution of firemen, 8199.
Unfastening of lock of safety lamp, supposed cause of, 112.
Watering, effect of, in arresting explosion, 7656.
Withdrawal of men, failure to order, at right moment, 8192, 8192.
Glyn Colliery, Pontypool, details of explosion at, 546.
Liverpool and North Wales district: number of explosions in, 1371, 1381, 1759.
Llanbradach explosion, report on as to watering, 89.
Llanerch Colliery explosion, 1180.
Llest Colliery explosion, 4667:
Coroner's inquest, 1174, 4793.
Inspector's unsuccessful attempt to introduce safety-lamps previously to, 411, 413, 1169, 4667, 4772, 4803, 4804, 4868, 6316, 8185.
Home Office only informed of this after the explosion, 4776, 4787, 4804.
Maclaren Colliery explosion, *see that title.*
Manchester district, immunity since 1901, 1915, 1964.
Micklefield Colliery explosion, 3565.
Morfa explosion, cause of, disagreement between jury and inspector as to, 4799.
National Colliery explosion, *see that title.*
Number of, 85, 104, 515, 519, 546, 1374, 1381, 2652, 5815, 5963 *and Appendix V.*
(*See also title* Accidents, *subheading* Number of.)
Report by Mr. Haldane on causes of death in colliery explosions and underground fires, 6353.
Reports on generally show laxity on part of management and want of discipline among men, 19.
Seaham Colliery explosion:
Cause of and extent of, and manner in which explosion traversed the intake roads, 6353.
Watering of haulage roads, question whether accident might not have been prevented by, 6396.
Shakerley Colliery explosion, cause of, 1967.
Southern district, number in, 515, 546.

Digitized by Google

Talk-of-the-Hill Colliery explosion :
Arrest of, by silicious dust, 91.
Pneumataphor, use of, 222.
Timsbury Colliery explosion caused by ignition of dust by blasting, 1227.
Tylorstown explosion : verdict of jury in accordance with inspector's evidence, 4799.
Underground communication in relation to, *see title* Underground Communicationc.
Universal Colliery explosion, 89, 91, 116, 8583.
Violation of rules not necessarily implied by an explosion, instance proving, 5477.
West Stanley Mine, 6425.
Wingate explosion, 6662, 7449, 7461, 8680, 8696.
(*See also titles* Dust *and* Watering.)

Explosives :
Acts of Parliament and Order referring to :
Coal Mines Regulation Act (Sec. 47), General Rule 12, 116, 557, 806, 6188, 9601, 9605.
Consolidation advocated, 8791.
Explosives in Coal Mines Order, *see that title.*
Explosives Act, 1876, 128, 1468.
Bobbinite :
Dangerous character of, and number of explosions caused by, 1375.
Departmental Committee of inquiry into, 116.
Liverpool and North Wales district, 1375.
Removal from permitted list, views as to whether desirable, 1379.
Care of, by official shot-lighter, 1475, 1477.
East Scotland district, explosives used in, 3148.
Gunpowder :
Accidents caused by naked lights, 5115.
East Scotland district, 3151.
Liverpool and North Wales district, 1616.
Prohibition of in dusty mines, 5112, 5830.
Storage in miners' houses, regulations as to 1469.
West Scotland district, use of, in, 5111.
Permitted Explosives :
Abuse of, possibility of, 545.
Advantages of system of, 7712.
Conditions of use, 672.
Explosives in Coal Mines Order, *see that title.*
Liverpool and North Wales district, 1615.
Manchester district, use of, in, 2002.
Powers with regard to, 787, 796.
Purchase by miners, dangers of and remedies suggested, 117, 9601.
Certified places where men might purchase, 120.
Men's clubs, supply by, suggestion by inspectors as to, in 1903, 132.
Stocksbridge Mine, instance of danger of this practice, 3662.
Supply by owners, suggestions and views as to, 117, 141, 580, 3661, 3665, 5117, 5637, 5831, 7713, 8429, 9601.
East Scotland district, 2717, 3149.
Extent to which already practised, and probable attitude of men towards introduction of, 132, 133, 1464, 2718, 3152.
Liverpool and North Wales district, 1464.
Manchester district, practice as to, 2016, 2186, 2189, 2362.
Mining Association and Local Associations, views of, as to, 132.
Shale mines, compulsion as to, in, 2717, 3149.
Southern district, 581.
Truck Acts, in relation to, 2184, 2722.
Searching men before going down mines, 5833, 7714.
Storage of in mine by miners after work, 1475.
Storage of in miners' houses :
Act of Parliament referring to, Explosives Act, 1876, 128, 1468.
Danger of, and desirability of prohibition, 117, 120, 125, 134, 579, 1474, 1477, 3661.
East Scotland district, practice as to, in, 3152.
Gunpowder, regulations as to, 1469.
Home Office circular to police authorities as to granting certificates to miners for keeping high explosives, 134.
Instruction to inspectors as to, 128.
Lancashire, practice as to, in, 1466.
Manchester district : Bradford Colliery sole instance of, 2013.
Miners should not be compelled to bring out explosives, if quantity does not exceed 3 lbs., 579.
Storage of in mine
Shot-firing be
Testing, 5835.

Explosives Act, 1876
explosives by m
Certificate for sto
than certificate

Explosives in Coal M
2342*, 7228, 723
Defects in wordin
Definition of mine
Extension of as t
desirable, 4142, 4
Provisions of shou
of Coal Mines R
Simplification of, p

Factory Act, 1891
Establishment of
factories and w
as to, 200.
Grant for surgeon
grant for inspecti

Factory Act, 1901 :
Boilers, periodical
as to similar prov
2049, 2741.
Enquiry into Fact
ways and railway
Requirements of, si
Special Rules, proc
suggestion as to
Rules for mines,
2811.

Falls of Roof and Sides
Accidents.

Fatal Accidents Inqui
Scotland, *subheading*

Fiery Mines :
Definition, 786, 4837.
Manager's certifica
whether expe
compulsory fo
1543, 2131, 28
8981, 9679.
Special certificat
627, 2136, 251
Ventilation :
Auxiliary fans,
9058.
Slackening fans

Fines :
Abolition or very rar
suggestion, 3516, 5
Advantages or disad
prosecution, *see t*
heading Advantage
Amount of, 1692, 192
Maximum, 1923,
Prosecution of ov
fines, possibilit
Apology, posting, *see*
Enforcement, *sub-s*
Arbitrary use of this
2299.
Book of fines, examin
1930, 1933, 5714, 57
Bye-laws, offences aga
Disposal of, 1355, 1594
Firemen's reports, prol
Inspector's advice to m
Knowledge amongst m
desirability of sprea
9033.
Legality of, views as to
List of, not published,
Liberty of men is int
the only alternative,
Magistrates, wider dis
prosecuting advocate
Manager's option with
Number of, as compa
1675, 1686, 1690, 2241,
3867, 4114, 8646.
Procedure described, 16

Digitized by Google

Prosecution by inspector of owner or manager for inflicting fines in cases where punishment should have been by prosecution, questions as to, 4695, 5719, 8651, 8659.
Prosecution by inspector, of owner or manager for inflicting very heavy fines, possibility of, 7917.
Report of fines, to inspector, no obligation as to, 1939, 4697, 4709, 4915.
Report of offences by firemen, 2437.
Truck Acts in relation to, 1777, 1923, 1925, 2620, 4702, 4709.
(For practice as to fines in particular districts, see titles of districts as Liverpool and Newcastle district, Manchester and Ireland district, etc.*)*

Firemen, inspection of mines by, *see title* Inspection of Mines by Mines Officials.

Fochriw Explosion, *see title* Explosions.

Foreign Workmen, Employment of in English Mines:
Discipline, character as to, 5021, 5566.
East Scotland district, 3402.
English language, proportion unable to speak, 5567.
Liverpool and North Wales district, 1857.
Midland district, question as to, 10109.
Objection to, views on this point, 3403, 4933, 4940, 5021, 6536, 7360, 8443, 9315, 10110.
Translation of Rules into foreign languages, 3404.

Forest of Dean:
Output, 1190.
Safety lamp not used, 1189.

France:
Controlleur des Mines, office of, 8333.
Courrières Colliery, *see that title.*
"Inflammable Dust," term used in new regulation, 5787.
Inspection of mines by men in, 6559, 9373, 9474.
Timbering, 7426, 7429, 8814, 8820.
(*See also title* Courrières Mine.)

Ganister Mines, special rules as to, 3740.

Gartshore:
Accident from breaking of a cable, 5349.

General Rules:
Working of, 278, 2815.
(*See also title* Coal Mines Regulation Act, 1887, *subheading* Section 49, General Rules.)

Germany:
Commission appointed to enquire into examination of mines by or on behalf of workmen, 24, *and Appendix XI.*
Plans, regulations as to, 652, 679.
Rescue work and apparatus, 9410.
Watering system, 3190, 5775, 6015, 6334, 8369.
(*See also* Westphalia.)

GERRARD, Mr. J., inspector in charge of the Manchester and Ireland district, evidence of, 1864-2520.

Glenavon, accident at, 4789, 6276.

Glyn Colliery, explosion at, 546.

GRAY, Mr. F. A., inspector in charge of the Cardiff district, evidence of, 7549-8587.

Great Western Collieries, shot-firing not practised in, 8356.

HALL, Mr. H., H.M. Inspector of Mines for the Liverpool and North Wales district, evidence of, 1302-1863.

Haulage Accidents:
Act of Parliament referring to: Coal Mines Regulation Act, 1887 (General Rules 14, 15, 28 and 32), 159, 2036.
Boilers, examination, *see title* Boilers.
Causes, general observations as to, 159, 1493, 2038, 2383, 3707, 5861, 5864, 6783, 6940, 8825, 9643.
Liverpool and North Wales district, 1487, 1493.
Manchester and Ireland district, 2036, 2041.
Mechanical haulage, effect of, on number of accidents, 5238, 6290.
Men tramming their own material, question as to, 5641
Number of, and death-rate from, 159, 1487, 1493, 2036, 3707, 5861, 6782, 7740 *and Appendix VII.*
Prevention of, suggestions as to, 159, 588, 1493, 1573, 1656, 2381, 4461, 5405, 5862, 6228, 7751, 8835.
Boilers, examination of, *see title* Boilers.
Prevention of, suggested as to—*cont.*
Blocks, self-acting, to prevent runaways, suggestion as to, 5130, 5405, 5862, 6784, 9645.
Gradient of haulage roads, improvement advocated, 3710.
Manholes or refuges, 5404, 5410, 6791*, 7272.
Over- or under-chains to connect wagons, compulsory use of advocated, 9644.
Rails, condition of: keeping in better order advocated, 5132.
Separate travelling roads, views as to, 2042, 2499, 5132, 6786, 6791, 7269, 7747.
Wagons, type of, and size of, suggestions as to, 2039, 2047, 9644.
Prevention of—*cont.*
Widening of haulage roads, desirability of and of General Rule as to width, &c., views as to, 2039, 3707, 5130, 5132, 5411, 5413, 5640, 5862, 6140, 6228, 6788, 6944, 7748, 8830.
Reports on, 159.
Single-link chain, use of, General Rule 28 as to, 2036.
South Wales district, death-rate from, 5861.
Southern district, 588.
Stafford, death-rate from, 5861.
West Scotland district, *see that title.*
York and Lincoln district, 3707.

Hill of Beath Colliery accident, breathing apparatus would have been useful at, 8934.

Hydraulic Wedge, use of, 8934.

Inspection of Mines by Men:
Act of Parliament regulating: Coal Mines Regulation Act 1887, General Rule 38, 9, 15, 19, 64.
Accidents:
Fatal, right of men to inspect after, view as to, 3466, 3507, 3853, 5975, 7177.
Number of accidents in relation to, 370.
Adequacy of, *see subheading* Value of and Efficiency of.
Appointment of two men in each district to give whole of their time to this work, suggestion as to, 9724, 9835, 9883, 9908, 9923, 10129.
Compulsion as to, views as to whether desirable, 480, 485, 494, 699, 1206, 5980, 9474, 9492, 9723, 9834, 9873, 9921.
Continuous inspection, question as to possibility of 3460.
Cost of:
Borne by the men, 25, 483, 1208, 1910, 3262, 3376, 4295, 4297, 4645, 7598, 8633, 9474, 9493, 9838.
Deductions from wages of men in order to secure contributions from non-unionists, views of men as to, 3475.
Estimates of cost, 3376, 9478, 9730.
Government to defray, views as to this suggestion, 2610, 2612, 4891, 9183, 9382, 9476, 9478, 9728, 9835, 9892.
International Miners' Conference, reference to, 1208.
Owners and managers, instances of contribution towards, and views of witness as to whether undesirable, 2611, 3481, 9474, 9493.
(*See also subheading* Payment.)
East Scotland district, *see that title.*
Exemption of small mines, 1209, 9474, 9873.
Extension beyond present provisions of the Act undesirable, 5281, 6613.
Extent desirable (number of inspections), views as to, 479, 494, 1340, 1346, 1588, 1671, 3375, 4537, 5711, 6613, 8156, 8642, 9186.
Home Secretary's reply to question in House of Commons, 6901,
Extent to which power is exercised in different districts, 19, 80, 390, 395, 472, 697, 1210, 1338, 1357, 1585, 1674, 1903, 1909, 1915, 2598, 2600, 2606, 2889, 3255, 3260, 2605, 2889, 3255, 3368, 3469, 4642, 4645. 4650, 4976, 5694, 6075, 6077, 7580, 9474, 9493, 10054*.
German Commission, report of on, 24, *and Appendix XI.*
Lanarkshire Miners' Association, decision as to, 3369.
Lancashire, extent of in, 1586.
Length of time occupied by, 3379, 3460, 3915, 5979, 7595, 8159, 8547, 9730.
Liverpool and North Wales district, 1338, 1341, 1586, 1674.
Manchester and Ireland district, 1903, 1908, 1910.
Midland district, *see that title.*
Miners' Union, encouragement by, 8630, 9187.
Notice must be given, 4083.
Number of men employed in, 8547.

Digitized by Google

Inspection of Mines by Men—*cont.*
Official of the mine usually accompanying men's inspector, 4082, 10132.
Owners and managers:
Attitude towards, 80, 372, 392, 488, 490, 3852, 6617, 7402
Contributions towards cost, 2611, 3481, 9474, 9493.
Rights of owners, protection of, restriction as to use to be made of knowledge gained in inspecting mines, &c., 4085, 4096.
Payment of men making inspection, 3479, 7589:
Amount of, 2606, 2614, 4296, 8635, 9481.
Fines devoted to this purpose, question as to 3487.
Owners, contributions from, instance of, and views of witness as to whether desirable, 2611, 3481, 9474, 9493.
Qualifications of men for making inspections, 9474:
Certificates of competency, views as to, 3937, 3947.
Employment in same mine not essential, 693, 4084, 4643, 7173, 7393, 8532, 9474, 9497, 10129.
"Practical Working Miner," 64, 693, 3504, 3855, 3930, 4093, 4273, 4883, 8531, 8634.
Value of the inspection depends on quality of man selected, 2295.
Reports:
Issue of, to inspector of a district or to owners and managers, views as to, 688, 3371, 4947, 5261, 9836, 9894.
Nature of and method of dealing with, 395, 495, 688.
Number of, 7170.
Specimen of Reports made by miners in Southern district, *Appendix XIII.*
Use of, at coroners' inquests, 396, 5256, 6983, 10056.
Value of, and efficiency of, views as to, 19, 24, 26, 70, 367, 494, 686, 1205, 1341, 1586, 1908, 2294, 2604, 2617, 3381, 3460, 3466, 3912, 3924, 3944, 4289, 4298, 4884, 4979, 4982, 5252, 5258, 5693, 5710, 6525, 7586, 8154, 8524, 8638, 10055.

Inspection of Mines by Mines Officials:
Act of Parliament Regulating: Coal Mines Regulation Act, 1887, General Rule 4 as to, 33, 509, 511, 717, 737, 751. 762, 1947, 3119, 3122.
Adequacy of, views as to, and as to what constitutes adequate inspection, 33, 509, 1357, 2322, 2634, 2636, 2640, 3003, 3537, 4327, 5242, 5734, 5738, 6297, 6513, 6651, 7930, 8678, 8664.
Appointment of, should be left to manager, 629, 638.
Before the shift; time at which this examination should take place, and views that it should be by man in charge of the shift, 509, 717, 737, 748, 1094, 1598, 1945, 2322, 2640, 6914, 8665, 9523, 9739.
Stonemen and repairers' shifts, specification of time advocated, 8664.
Certificates of competency for firemen, views as to whether desirable, 629, 1037, 3962, 6502, 9366, 10116.
Districts, size of, 509, 1054, 1949, 3978, 6652, 8176.
Home Office inspector, power of decision as to size of district, views as to whether desirable, 7003.
Limitation or decrease, views as to, 33, 509, 717, 1054, 1066, 1358, 1949, 2635, 2638, 3119, 3121, 3388, 3541, 3599, 3873, 4894, 5734, 5740, 6300.
Manager, decision as to size of district should rest with, 763.
During the shift, 1357, 1397, 1600, 4849.
Number of inspections desirable during, 33, 509, 510, 511, 729, 751, 1058, 1357, 1597, 1946, 2322, 2640, 3011, 3128, 3537, 5241, 5339, 5532, 5738, 6186, 6300, 6303, 6647, 6757, 6765, 6909, 7109, 7205 7612, 8076, 8254, 8675, 9242, 9523, 9524, 9739,
Two shifts following each other should not be counted as one, 9523, 9524.
Duties other than inspection performed by firemen, 1056, 1062, 1100, 5242, 7722.
Firedamp, record of, in report book, compulsory, advocated, 5058, 5321.
Hours of work of firemen, and number of days a week, 723, 1095, 1067, 1100, 3129, 5343, 6301, 7620, 7930, 8249.
Davies, Mr. H., as to, 1067, 1070.
Lancashire, practice as to, in, 1357.

Inspection of Mines by Mines Officials—*cont.*
Hours of work of Fireman—*cont.*
Manchester district, 1945, 1949.
Southern district, 1056, 1067, 1072.
Statement by a mining engineer as to, 7625*.
Morning inspection, 1358, 3971, 4847, 4895.
Number of firemen, increase advocated, 2638.
Number of men under charge of one fireman, views as to, 10118.
Overmen, increased number of, advocated, 7722.
Qualifications of firemen, class of men chosen, &c., 629, 638, 1038, 5317, 5494, 5602, 6511.
Certificates of competency, views as to whether desirable, 629, 1037, 3962, 6502, 9366, 10116.
Contractors' agents, employment of, 34, 5741, 5988, 6170.
Reforms, general suggestions as to, 509, 1054, 1066, 1100, 3868.
Reports on, 757, 1600, 1946, 2325, 2639, 3537, 4852, 5058, 5321, 7210, 7615.
Books or forms, wording of, 5322, 7213, 7324, 7447.
Roofs, defective, report on, neglect of, and suggestion that it should be compulsory, 5030, 5321, 5323.
Safety lamps, use of, by, in examination of roof and sides, 1082, 1779, 1829, 2276, 6706, 7102, 7677, 9624, 9629.
Same fireman should inspect before and during the shift, 7927, 7954.
Shot-firing, duties as to, 1063.
Special Rules for, introduction attempted in Southern district, 33, 510.
Wages paid to firemen, 5340, 5538, 5501.

Inspectors of Mines (Home Office Inspectors):
Accidents, inspection after, 8572, 9095.
Acts of Parliament, appointment under, historical account of, 6, 268.
Adequacy of inspection, views as to, 16, 436, 444, 685, 992, 1000, 1017, 1020, 1580, 1713, 1738, 1876, 1888, 2293, 2526, 2534, 2582, 2993, 2997, 3002, 3047, 3268, 3303, 5264, 5673, 5674, 6961, 9095, 9181, 9384, 9793.
Public opinion as to, 9385.
Advice to leaders to urge men not to work in dangerous places, 1146.
Age limit, 8615, 9229, 9803.
Appointment by Secretary of State, 9.
Assistant inspectors:
Classes of inspectors, views as to, 6322.
Clerical work, amount of, 679.
(*See also sub-heading* Clerical Work.)
Communication with inspector, system of, in Manchester district, 1894.
Coroners' inquests, attendance at, 1312, 3419, 5678.
Electricity, knowledge of, a condition of future appointments, 468, 3457.
Number of, and views as to whether increase is desirable, 1580, 1721, 3424, 3427, 4079 4254, 4633, 4964, 5688, 6572, 6587, 6958, 6974, 6987, 7084, 7145, 7565, 8145, 8324, 8597, 9095, 9100, 9231, 9234, 9795, 9807.
Equal number of inspectors and assistant inspectors, suggestion as to, 9240.
Number of underground inspections made by, and proportion to inspections made by chief inspector, 439, 680, 1311, 3431.
Increase in number of inspections, impossibility of, 3448.
Promotion, slowness of, 5688, 6072, 9232, 9800.
Qualifications, 1276, 1735, 3091, 5684, 5970, 6070, 6155, 6320, 6327, 7153, 8328.
Reports sent to inspector, 9898.
Residence, place of, 1277.
Salary, 5686.
Increase advocated, 5687, 5691.
Transfer of, from district to district periodically, views as to, 1578, 3453, 7149, 7553, 8591.
Vacancies, 6572, 7048, 7054.
Working miners, appointment as, views as to whether desirable, 2887, 3057, 3080, 3093, 3104, 3254, 3264, 3277, 3296, 3786, 3803, 3940, 5263, 6319, 6322, 6328, 6545, 6973, 7157, 7371, 7407, 8152, 8159, 8165, 8324, 8527, 9724, 9795, 9813, 9832, 9908, 10129.
Change in working of mine, inspection should be undertaken by inspector himself, not by assistants in event of, 4971.
Checkweighing, time occupied with questions of, 9012.

Digitized by Google

Inspectors of Mines (Home Office Inspectors)—*cont.*
Chief inspector of mines, suggestion as to appoint, ment of, 11, 18, 45, 5682.
Duties and qualifications, 12, 288.
Effect on class of man obtainable as district inspector, question as to, 288.
Relation of, to other inspectors, 12, 290.
Uniformity of administration would be secured by, 52, 287.
Clerical work:
Allowance for, 459, 467, 1313, 1318, 2572, 2574, 2581, 3441, 3449, 4261, 6579.
Amount of, 456, 464, 679, 1313, 1889, 2567, 2571 2581, 4260, 4262.
Effect of, on amount of inspection, 467, 1318, 2569, 3450, 5270.
Suggestion that statistics should pass through inspector's hands and then be forwarded to Statistical Branch of the Home Office, 9702.
Transfer of work as regard statistics to Mining Statistics Branch of the Home Office, suggestion as to, and views as to, 19, 46, 667, 1332, 1883, 1892, 2588, 2589, 3447, 3848, 4264.
Complaints, method of dealing with, 7162, 8575.
Coroners' inquests, attendance at, 453, 679, 1312, 1881, 2539, 3418, 4795, 5674, 6591, 6605.
Dangerous mines, marking off by inspector, powers as to, 4755.
Districts:
Characteristics, comparison, 428, 1308, 2163.
Number of, and views as to, increase (subdivision of some districts), 9, 5677, 6070, 9812.
Rearrangement, question as to, 17, 2166.
Size of, 5673, 6069, 9234:
Cardiff District, 4253, 5673, 7569.
East Scotland, 2525, 3047, 3377.
Liverpool and North Wales district, 1711.
Manchester and Ireland district, 1874. 2164.
Midland district, 9471, 9531, 9812, 10102.
Southern district, area of, 474, 983.
Swansea district, 4253–4257, 5673, 5676, 7569.
York and Lincoln district, 3424, 3430.
Duties of, 9, 18, 45, 49, 423, 2523, 3271.
Quarries over 20 feet deep added to duties of, in 1894, 5, 1199, 2526.
Electricity, knowledge of, a condition of future, appointments, views as to, 19, 466, 2484, 3455, 4063.
Expert assistance, necessity for and possibility of obtaining from Home Office, 470, 957, 1334, 1900, 2481, 2596, 2882.
Fines, reports of, to inspector, no obligation as to, 1939, 4697, 4709, 4915.
Information as to matters requiring investigation, sources of, 7162, 8575.
Instructions issued to, confidential nature of, 8.
Number of inspections, 436, 441, 680, 683, 986, 1002, 1012, 1013, 1018, 1311, 1738, 3426, 3896, 4066, 4069, 4637, 4886, 4966, 4970, 5266, 5279, 5460, 6961, 8152, 8327.
Continuous inspection, views as to whether desirable, 4075.
Number of inspectors, and views as to increase, 6, 273, 1119, 1199, 1721, 2529, 2888, 3424, 3427, 4079, 4964, 5675, 6069, 7565, 8145, 9166, 9176, 9231, 9369, 9465, 9795, 9831, 9807, 10080, *and Appendices I. and II.*
Adequate and thorough inspection of all mines, number of inspectors that would be required for, 9108.
Bill proposing increase of: Miners' Federation Bill, 1197, 1251, 1721.
Equal number of inspectors and assistant inspectors, suggestion as to, 9240.
German system, 1251.
Object of inspection, 9097.
Powers of:
Adequacy of, views as to, 56, 268, 5315, 5484, 6107, 7165, 7380, 9319, 9332, 10139.
Enforcing orders on owners and managers, 9, 75, 446, 679, 1118, 2470, 2791, 2798, 3078, 4657, 4690, 4765, 4767, 4772, 4803, 4814, 4872, 4879, 5245, 5717, 6109, 6172, 6182, 6316, 6625, 7030, 7178, 8596, 8702, 9321, 9518, 10141.
Consent of Home Office obtained before prosecution of owners, 5244, 7179.
Prosecutions of men, reports of results of, to inspectors, regulations as to, 4913.
Qualification and status of, 9282, 9284, 9910.
Quarries, inspection of, 5, 1199, 2526, 2529, 9468, 9795.

Inspectors of Mines (Home Office Inspectors)—*cont.*
Relations with owners, improvement in, 2514.
Reports to Home Office, information contained in, 8565, 8572.
Reports on inspection of mines by men, question as to whether sending to inspectors is advisable, 4947, 5261.
Residence, place of, powers of Secretary of State as to, 1277.
Responsibility, extent of, 10, 275.
Salaries, 6.
Special Rules, model, to be drawn up by Secretary of State, and inspectors, suggestions as to, 9647, 9653, 9780, 9986, 10021.
Status, raising advocated, 5684, 6152, 9282.
Surprise visits, 6549, 6550, 9377.
System of inspection:
Account, general, of, 9 52, 444, 685, 993, 1000, 1011, 1201, 1717, 3898 3906, 3925, 5271, 6513, 6961.
Undersea workings, powers as to, 2779, 2794.
Watering, knowledge as to extent of in any particular mine, views as to, 7055.

Intoxicating Liquors:
Charter-master system, evils of in relation to, 6177
Prohibition of taking down mine, 6179.

Isle of Man:
Lead mines, 9446.
Miners' phthisis, 9451.

"Kibble," use of, 8938, 9151, 10087:
Definition of a "kibble," 8942.
Legality of, views as to, 8956, 9159, 10091.
Men's appeal to owners ignored, 8963, 8966.
Time occupied in raising men, 8938, 8954.

Llanerch Colliery Explosion:
Fatalities at, 1180.
Safety lamps, introduction of, in relation to, 1180.

Lamps:
Safety lamps, *see that title.*
Scotch oil lamps, objections to, 9637.
Spirit lamps, 1979, 2175, 2675.

Lancashire:
Discipline, character as to, 9191.
Inspection of mines by men, extent to which practised, 9189.
Liverpool and North Wales district, *see that title.*
Manchester and Ireland district, *see that title.*
Metalliferous mines in, 9426, 9430.
Safety lamps, use of, in, 848, 1224, 6205, 6207, 8042, 8178, 8337.
Timbering rules, 2020, 2025, 2372, 6494.
Women, employment of, 7359.

Larkhill Colliery:
Inspector's enforcement of power over owner, instance of, 9324.
Over-winding accident, resulting from employment of unskilled engine-driver, 9363.

Liverpool and North Wales District:
Accidents:
Investigation into:
Coroners' inquests:
Adequacy of, 1525, 1795.
Number of, in 1905, 1311
Second enquiry, no cases of, 1526
Number of, increase in, 1568.
Ankylostomiasis:
Foreigners in North Wales, suspected cases among, 1859.
Liverpool Hospital, suspected case in, 1536.
No cases of, 1535.
Sanitary conveniences not provided, 1860.
Boilers:
Examination of, suggestion as to, 1499.
Insurance companies inspection by and reports of, 1499.
Dust in mines:
Cause of, 1405.
Number of dusty mines, 1561, 1758.
Prevention, methods of, 1404.
Salt, experiments with, results of, 1842.
Explosions:
Number of, decrease in, 1371, 1373, 1759.
Causes to which attributable, 1374, 1381.
Explosives:
Bobbinite, use of, 1375.
Charge of, by official shot-lighter, practice as to, 1475, 1477.

Digitized by Google

Liverpool and North Wales District—*cont.*
Explosives—*cont.*
Gunpowder, use of, 1616.
Permitted explosives, use of, 1615-6.
Purchase of, by men from owners, practice as to, 1464.
Storage in mine by miners after work, 1475.
Storage in miners' houses, 1466.
Fines, system of, 1688.
Disposal of fines 1355, 1594.
Number of, 1675, 1690.
Offences dealt with by, 1691.
Haulage accidents:
Number of fatal accidents, 1487.
Reasons for and suggestions as to reduction of, 1493.
Inspection of mines by men:
Adequacy of inspection, 1341.
Exercise of this power, 1338, 1586, 1674.
Value of, 1342.
Inspection of mine by mines officials:
Adequacy of, 1358.
Districts, size of, 1358.
During shift, number of inspections, 1357.
Safety lamps, use of, by officials, 1779.
Inspectors of mines:
Adequacy of inspection, 1580, 1715, 1738.
Assistant inspectors:
Number of, adequacy of, 1580–4.
Qualifications of, in surveying, 1735–6.
Clerical work:
Allowance for, amount of work and time taken by, 1313.
Assistance as to, effect of with regard to work of inspection, 1318.
Suggestions as to dealing with, 1321.
Transfer of, to Mining Statistics Branch of Home Office, view whether desirable, 1332.
Coroners' inquests, attendance at, 1312.
Districts, size of: number of coal mines and persons employed in, 1711.
Electricity, expert advice as to, 1334.
Number of inspections, 1311.
Inundation:
Accumulation of water in mines near working collieries, cases of, 1693.
Letting of coal, system adopted, 1700.
Manager's certificate of competency, examination for: adequacy of, 1539.
Plans, accuracy of views as to, 1700, 1729, 1734, 1743.
Prosecution of men by owners:
Advantages and disadvantages compared with fining, 1349, 1678.
Impracticability of, in every case, 1350.
Payment of defence by Miners' Union, 1353–5.
Railway sidings: Special Rule as to, adequacy of, 1512, 1515.
Rescue work and appliances:
Ambulance classes and instruction, 1528.
Rescue corps and station:
Establishment of, proposed, 1531.
Safety lamps:
Accidents from, 1450.
Extent to which used, 1432, 1433.
Screw locks, disuse of, 1446.
Special Rule as to use of, adequacy of, 1435 1443.
Shaft accidents:
Breaking of rope:
Examination of ropes and fittings, 1756.
Recapping of rope periodically, views as to whether rule desirable, 1508.
Enginemen, competency of, 1506.
Gates or bars at end of cage: Special Rule as to holding-on bars, 1511.
Shot-firing:
Between shifts, practice as to, 1786.
Prohibition during shift, views whether desirable, 1457.
Watering within neighbourhood of shot, not practised, 1613.
Special Rules:
Adequacy of, 1523.
Establishment, cumbersome system of, and suggestions as to improvement, 1517.
Timbering:
Accidents from falls of roof and sides, increase of, 1568.
Reduction of, possibility of, 1705.
Drawing of props:
Accidents from, 1705.
Special Rule as to, 1705.

Liverpool and North Wales District—*cont.*
Timbering—*cont.*
Special Rules as to:
Adequacy of, 1481.
Accidents, increase of, since introduction of, 1483.
Inspector's approval of distance between props, views as to whether desirable, 1569*.
Unskilled labour:
Foreigners, employment of, 1857.
Regulations as to employment of, 1792.
Ventilation:
Prosecution for inadequate ventilation, 1424*.
Safety lamps, indication furnished by, 1422.
Wagons, construction of, 1405.
Watering: systems of, 1404, 1406.
Workmen: opportunities given to, to acquire knowledge of mining, 1562.

Llanbradach Colliery Explosion, 89.

Llanerch Colliery Explosion, 1180.

Llest Colliery Explosion, *see title* Explosions, *sub-heading* Llest Colliery Explosion.

Local Authorities:
Facilities granted to workmen by, to obtain knowledge of miners' work, 1562.
Powers of, in relation to coal mines, 9.

Maclaren Colliery Explosion:
Counsel for Home Office at inquest, qualifications of, 216.
Dusty mine, question whether, 6455.
Haulage road, 6454.
Inspection of mines by men, power rarely exercised, evidence as to, 24.
Second inquiry, miners' request as to, and decision of Secretary of State against, 212, 216, 219.
Shorthand notes at coroner's inquest, question as to, 218.
Ventilation, defective, evidence as to, 97, 101, 4861, 8423.
Watering, in relation to, 89.
(*See also title* Abertysswg Explosion.)

MacLAREN, Mr. R., chief inspector of the East Scotland district, evidence of, 252, 13412.

Managers:
Act of Parliament referring to: Coal Mines Regulations Act, 1887 (Secs. 20, 21, 23, 24 and 25), 37, 227, 1296, 9166, 9201, 9350, 9717, 10048.
Ambulance certificates, compulsion as to, views as to whether desirable, 222, 614, 1529, 2112, 2344, 3240, 3747, 4631, 7312*, 8137, 9667, 9710.
Appointment of, 37, 227, 8129, 9201, 10117.
Certificate of competency, examination for:
Acts of Parliament regulating: Coal Mines Regulation Act, 1887 (Sec. 23, 24 and 25), and Coal Mines Regulation Act, 1903, 227, 1296.
Age of candidate, fixed by Home Office in all districts, 227.
Uniform regulation as to, advocated, 2138.
Area for which certificates are available: the whole country, 227, 1297, 1299, 1542, 1823, 5204, 7807, 7813.
Boards of examination:
Account, general, of constitution, powers, number of districts, cost, &c., 227.
Central Board with uniform standard for whole country, suggestions as to, 618, 1290, 2214, 3764, 3770, 5919, 5922, 5928, 6248, 6855, 7811, 7830, 7835, 8984, 9679.
Composition of, 959.
East Scotland district, 2872.
Liverpool and North Wales district, 1539.
Manchester and Ireland district, 2128, 2214, 2421.
Midland District, 9677, 10013.
Number of boards, 1539, 6852, 7806, 7817, 7835.
Number of examiners, 227, 2128, 4500.
Representatives of each district, preparation of papers by, advocated, 5435.
Retirement of members, 2128.
South Wales Board, 5917.
Southern district, 618, 628, 959.
Stafford Board, 5916
York and Lincoln Board, 3764.
Breach of rules, instance of, 2127.
Classes of certificates, first and second, 227, 8986.
One examination for each class, views as to, 4499.
Condition of, 227.
Consulting engineer should hold certificates, 639.

Digitized by Google

Certificate of competency, examination for—*cont.*
Electricity, experience of, views as to whether desirable, 618, 953.
Fiery mines:
Experience in, views as to whether desirable, 227, 244, 618, 623, 946, 962, 1543, 2131, 2862, 3773, 7829, 8286, 8976, 8979, 8981, 9679.
Southern district, experience not exacted in, 618.
Special certificate for, views as to, 627, 2136, 2516, 3776, 5925, 8986.
Foreign and Colonial mines, experience gained in, desirability of admission of, views as to, 244, 618, 962, 644, 1548, 1667, 2148, 2422, 3782, 5211, 5947, 6869, 7840, 8133, 8991, 9686.
New South Wales Government, letter on, 244.
Report by Sir Clement Foster and Mr. Cunningham on, 244.
Local oral examination, views as to whether desirable, 2214, 3765, 4504, 5204, 5206, 5437, 5920, 5928, 6856, 7317, 7811, 8985, 8987.
Metalliferous mining schools' students, debarred from entering, 644.
Metalliferous mines, *see that title, subheading* Managers' Certificates of Competency.
Necessity for this certificate, 6508.
Number of candidates examined, and number passing during five years ending in 1905, *Appendix Table X.*
Number of candidates in each district, variations in, 1288.
Number of examinations yearly, 3766, 6240.
Over-man should be required to hold under-manager's certificate, 618, 1037.
Percentage of marks in each subject, system of, comparison with system of maximum number of marks for the whole, 628, 2129, 3772, 5208, 5922, 9677.
Place of examination should be stated, 1824.
Publication of papers, 1294.
Qualifications of candidates: definition of "official experience in a mine," 234, 638, 952, 961, 2209, 2881.
Breach of this rule, instance of, 2126.
Manchester system: examination open to any men employed in a mine, 2138.
Prosecution for false certificate, 2425.
Questions to be submitted to Secretary of State, suggestions as to, 4501.
Standard of examination, 618, 2138, 2857, 2858, 7802, 7808, 7826, 8234, 9285, 9679, 9785.
Surveying, elementary knowledge of, requirements as to, 679, 973.
Under-managers, application to, advocated, 7804.
Uniformity, views as to, 1298, 1550, 1815, 2138, 2214, 2864, 3764, 3770, 5918, 5933, 6243, 6854, 7313, 7806, 7811, 8139, 9679, 9785.
University diploma, substitution of for two years' practical experience, possibility of, 241.
Value of, 1301.
Water in mines, experience of unnecessary, 947.
Competency of managers, 7184, 7305, 8984.
Duties of, and views of witness that too much is left to under-manager, 9683.
Responsibility, position with regard to, 512, 639, 767, 772, 784, 860, 864, 1211, 1361, 1604, 1952, 2262, 2470, 3286, 3390, 4068, 4076.
Act of Parliament referring to Coal Mines Regulation Act, 1887 (Sec. 50 and 51), 29, 35, 321, 344, 774, 1364, 1952, 2262, 2266.
Special Rules, formulation by inspectors instead of by managers, advocated, 9647, 9653, 9996, 10013.
Two managers to one system of ventilation, objections to, 8741, 9064, 9201, 9204.
Arbitration case, 8744, 8749, 8758.
Under-managers:
Appointment of by manager instead of by agent advocated, 9716, 10048.
Amount of work left to, 9683.
Certificate of competency, suggestion as to, 7804.

Manchester and Ireland District:
Accidents:
Falls of roof, chief cause of accidents in, 2193.
Investigation into:
Coroners' inquests:
Adequacy of, 2094, 2099, 2285.
Accidents—*cont.*
Report made by counsel and inspector, value and use of, 2194, 2199.
Second enquiry:
Adequacy of, 2098.
Case of necessity for, 2108, 2198.
No cases of, 2288.
(*See also subheadings* Explosions, Haulage, *etc.*)
Agents:
Competency of, 1956.
Responsibility of, 1954.
Ankylostomiasis:
No trace of, 2123.
Sanitary conveniences, provision of, 2123.
Boilers:
Examination, adequacy and frequency of, 2049, 2057.
Insurance companies, inspection by, advantage of, 2052
Insurance, extent of, 2053.
Bye-laws, publication of, 2450, 2454.
Discipline:
Enforcement of:
Discharge for every offence, cases of, 2311.
(*See also subheadings* Fines *and* Prosecution of Men.)
Dust:
Classification of dusty mines, difficulty of, 1987,
Prevention:
Fans and pipes at screens, quantity of dust collected, 1990.
Methods in use, 1981, 1990.
Electricity, rules, adequacy of, 1901.
Explosions, 1916, 1965.
Number of, since 1901, 1964.
Explosives:
Accidents from, 2002.
Permitted explosives, use of, 2002.
Purchase of by miners from owners, practice as to, 2016, 2362.
Charge not unreasonable, 2186, 2188.
Storage in miners' houses, 2013.
Fines:
Amount, average, 1928.
Maximum, infliction of, 1927.
Extent to which fining is practised, 2434, 2447.
Offences dealt with by, 1925, 1931, 2252, 2260.
Register, provision of, 1929.
Report of offences by firemen, 2437.
System of enforcement, 1925.
Haulage accidents:
Number of, 2036.
Riding on inclined planes, 2383.
Special travelling roads, use and necessity for 2042, 2499.
Wagons with handles, use of, 2047.
Widening of roads, necessity for and difficulties of, 2039.
Inspectors of mines:
Adequacy of inspection, 1876, 1888, 2293.
Clerical work, present system, 1893.
Coroners' inquests, attendance at, 1881.
District, size of, 2164.
Electricity, assistance as to, views as to, 1900.
Owners, relations with, 2514.
Inspection of mine by men:
Cost borne by the men, 1910.
Exercise of this power, 1903.
Value of, 1908.
Inspection of mine by officials:
Adequacy of inspection, 2322.
Before shift, special rule and practice as to, 1945.
Districts, size of, not too large, 1949.
During shift, number of, 1946.
Manager's certificate of competency, examination for:
Adequacy of, 2128, 2214, 2421.
Ambulance certificate, resolution passed by Board of Examination as to candidates holding certificate, 2112.
Breach of rules of examination, case of, 2127.
Colliers allowed to sit for examination, 2138.
Fiery mines, practical knowledge of, not necessary, 2131.
Distinct certificate for fiery mines, views as to whether desirable, 2516.
Number of candidates, 2214.
Passing in all subjects, requirement as to, 2130.
Standard of, percentage of passes, 2138.
Testimonials of candidates, investigation, 2210.

Digitized by Google

Manchester and Ireland District—*cont.*
Metalliferous mines:
Managers certificate of competency, views as to whether desirable, 2141, 2145.
Number and size of, 2144.
Plans:
Accuracy of, 2159.
Inundation, cases of, through inaccurate plans, 2156.
Preparation of, qualifications of men employed, views as to, 2160.
Prosecution of men by owners:
Advantage and disadvantage of, as compared with fining, 1918, 1939, 2242, 2261.
Men's objection to, if sole manner of dealing with offences, 1921, 2248.
Payment of defence by Miners' Union, 1943.
Railway sidings:
Accidents, 2072, 2080.
New mines, width of sidings, adequacy of, 2072.
Special Rule as to, 2074, 2078.
Rescue work and appliances:
Ambulance classes and instruction, 2112.
Rescue corps and station: establishment of 2116, 2203.
Safety lamps:
Explosions caused by, 1967.
Extent to which used, 1966.
Objection by owners and men to introduction of, 854, 1180.
Single and double gauze, comparison of number in use, 1972.
Special rule as to use of, 1438, 1448.
Spirit lamps, use of, 2175.
Testing stations, number of, 1969.
Shaft accidents:
Breaking of winding rope:
Recapping of rope periodically, view as to whether compulsory rule is desirable, 2067*.
Safety catches, types used and efficiency of, 2062, 2505.
Detaching and safety hooks, use of, 2059.
Men falling from cage, accidents from, 2069, 2071.
Bars or gates at end of cage, necessity for, 2069.
Overwinding:
Enginemen, competency of, and views as to whether certificate is necessary, 2059.
Shot-firing:
Between shifts, practice as to, 2356.
Miss-fire shots: Special Rule as to, 2008, 2365, 2370, 4424.
Officials, shots fired by, practice as to, 2353.
Watering within neighbourhood of shot, practice as to, 2003.
Special Rules, introduction of, system of, 2081:
Arbitration, cumbersome nature of, 2083.
Consultation of men, before introduction of, 2093, 2411, 2452.
Timbering:
Accidents from falls of roofs, decrease of, 2021.
Arley Mine, system adopted in, cost of and safety of, 2029, 2190, 2463.
Condition of roofs, 1087.
Distance between props, improvement as to, 2025, 2379.
Gablock and chain system for drawing props, not obligatory, 2034.
Special Rules as to:
Adequacy of, 2376.
Establishment of, 2020.
Systematic timbering, advantage of, 2190.
Unskilled labour: employment of, 1089.
Ventilation:
Improvement in, 1965.
Prosecutions for inadequate ventilation, results of, 1974.
Safety lamps, indications furnished by, 565. 1975, 2179.
Wagons:
Dust-tight, iron wagons, use of, 1981.
Watering:
Expense of, and damage incurred by, 2000.
Extent of, 1985, 1995, 2494.
Systems, experiments as to, 1981, 2495.

MARTIN, Mr. J. S., I.S.O., H.M. Inspector of Mines for the Southern district, *see questions* 422–1301.

Matches or Pipes, taking down into mine by men:
Cardiff district, number of prosecutions for, 5472.
Searching men before going down mine, 4494, 4580, 5297, 5462, 7326, 7714.
West Scotland district, 5012, 5462.

Mauricewood, accident at:
Description of, 9388.
Inspector's position at enquiry, 9095.
Rescue apparatus, would probably have been of use if available, 8934, 9388, 9403.

Metalliferous Mines:
Acts of Parliament regulating: Metalliferous Mines Regulation Act, 1872 and 1875; Mines (Prohibition of Child Labour Underground) Act, 1900; and Slate Mine (Gunpowder) Act, 1882, 5.
Suggestion as to legislation and General Rule, 9456, 9457.
Boilers, explosions of in Southern District, 594.
Boring, 9458.
Death-rate in, as compared with coal mines. 245.
Discipline in, not so good as in coal mines, 6863.
Hematite mines, 9419, 9426, 9434, 9440, 9444, 9448.
Inspection of, brought under regulation in 1872, 5, 6.
Lead mines, 9446, 9449.
Manager's certificate of competency:
Absence of provision for, in present Act, 245.
Desirability of, views as to, 247, 640, 959, 961, 1546, 2141, 2145, 2873, 3779, 4506, 5209, 5944, 6862, 6868, 7836, 8988, 9440, 9684.
Case cited as proving, 2145.
Foster, Sir Clement, letter as to, 249.
Hematite mines, 9422, 9440, 9444, 9448.
Institution of Mining and Metallurgy letter as to, 249.
One class of certificate would be sufficient 1551, 2147, 8989, 9444, 9448.
Efficiency of managers under present system question as to, 6866.
Manchester and Ireland District, 2144.
Mining School diplomas, suggestion as to, 640.
Miners' phthisis and ankylostomiasis in:
Difficulty of enforcement of Special Rules, 249.
Home Office arrangements with regard to, 249.
Lead mines, 9449.
Number of mines at work and persons employed under Metalliferous Mines Act, 1872, and comparison with coal mining industry, 245.
Shot-firing in, views as to, 8061.
Southern district, 980.
Temperature in, 1241.
Ventilation, 9419, 9430.

Metalliferous Mines Regulation Act, 1872, 2, 5.

Micklefield Colliery Explosion, loss of life in, 3565.

Midland District:
Accidents in:
Apparatus for raising and lowering men in event of accidents, cases of improper apparatus, 10090, 10091.
Death-rate, 7339, 8804, 8824, 9576.
Falls of roof and sides, number of accidents from, 9533, 9606, 9748.
Investigation into:
Coroners' inquests:
Adequacy of, views as to, 9663.
Men's representatives, presence at, 9663.
Whitwick Colliery, fire in, inspector's note on decision to seal up pit, 9667, 9672.
Ankylostomiasis:
Case, supposed, of, proved not to be the disease, 9675.
Sanitary conveniences, provision, 9675.
Depth of mines, 9939.
Doors of iron as a means of arresting explosions, experiment as to, 9541, 9758.
Discipline:
Character as to, 9507, 9611.
Explosions:
Blackwell explosion, 9537, 9943.
Iron doors as a means of arresting explosions, experiment as to, 9541, 9758.
Number of and death-rate from, 9533, 9562, 9576.
Safety lamp, introduction of, effect of on number of, 9576, 9628.
Fines: list of, examination of by inspector, and remonstrance with owner, or manager, when prosecution would have been more suitable than fining, 9513.

Digitized by Google

Midland District—*cont.*
Hours of work (each shift), 9743.
Inspection of mines by men:
Cost of:
Estimate of cost in event of appointment of two men to give whole time to the work, 9730.
How defrayed, under present system, 9474, 9493.
Extent to which practised, 9474, 9493, 10054*.
Length of time that would be occupied in inspection, 9730.
Reports, use of, at coroners' inquests, question as to, 10056.
Value of and efficiency of, 10055.
Inspection of mines by mines officials, 9523, 9739.
Districts, size of, and views as to whether reduction is desirable, 9531.
Special Rule 37, Warwickshire Code, amendment and conversion into General Rule advocated, 9523*, 9739.
Time of inspection noted on chart, 9523.
Inspectors of mines (Home Office inspectors):
Assistant inspectors, increase in number of, or appointment of working miners as inspectors, views as to whether desirable, 9724, 9795, 9813, 10060.
Clerical work, retention advocated, but statistics should pass through inspector's hands to Statistical Department of Home Office to be tabulated, 9702.
Districts, size of, and views as to whether reduction is desirable, 9471, 9531, 9812, 10102.
Hours of work and distance travelled, 10096.
Number of inspectors and assistant inspectors, 9465, 9793, 9831, 10080.
Number of inspectors, 9466, 9793.
Quarries, inspection, 9468, 9795.
Residence, places of, of inspector and assistant inspector, 9812.
Manager's certificate of competency, examination for, 9677.
Efficiency of Board, 10013.
Working miners holding, 10060.
Output, increase in, 9823.
Plans:
Accuracy of, views as to: inspector's failure in action against manager for inaccurate plans, 9690.
Prosecution of men:
Extent of, 9507, 9510.
Prosecutions of mines officials by inspector:
Number of, 9506.
Rescue work, appliances, 9667.
Safety lamps, use of in, 9576.
Accidents from defective lamps, 9595.
Accidents from falls of roof and sides, effect of introduction of safety lamps on number of, 9621.
Gauzes, method of ensuring that they are in place, 9595.
Number in use in, 9576, 9841.
Output with safety lamps and with naked lights, 9588.
Screw locks, use of in, 9576.
Wages, increase demanded, on introduction of safety lamps, 9576, 9843.
Scotch oil lamps, use of prohibited, 9637.
Shaft accidents, rarity of: all cages fenced at either end when men are riding, 9722.
Shot-firing:
Missfire shots: recovery of detonator, 9598.
Special Rules 50 and 51, as to, 9602.
Timbering:
Accidents from falls of roof and floor, 9533, 9606, 9748.
Barring, compulsory, advocated, 9750.
Contract of men to set timber themselves, 9749.
Gradient of mines in relation to, 9863.
Inspection, increased, advocated, especially in relation to timbering, 9748.
Special Rules, 9611, 9859.
Effect of, on number of accidents, 9611.
Notices under Special Rule 41, 9611, 9860.
Unskilled foreign workmen, employment of, question as to, 10109.

Midland District—*cont.*
Ventilation:
Plans of system, suggestion as to, 9690.
Wages in, 9482.
Increase demanded on introduction of safety lamps, 9576, 9843.
Wagons, type used, 9564.
Watering:
Deep mines, watering in, 9939.
Experiments to test drying powers of the air, and degree of humidity, 9540.
Extent of, 9536, 9559, 9562.
System of, 9536.
Women, none employed, 10106.

Miners' Federation Bill, provisions of, with regard to number of inspectors, 1197, 1251, 1721.

Miners' Phthisis, 9449, 9452.

Mines (Prohibition of Child Labour Underground) Act, 1900, age limit for boys, 5.

Monmouthshire:
Apology for breach of the Act, 3532.
Safety lamps, use of in, 519:
Falls of roof, effect of, with regard to, 532.
Wages increase in consequence of, 1194.

Morfa Explosion, 4799.

Murton Colliery:
Watering in, injury to roof and sides caused by, 7547.

National Colliery Explosion, Coroner's Inquest:
Adequacy of, 4802.
Counsel employed at, competency of, 216.
Discipline, laxity of, among men, evidence as to, 19.
Inspector's views as to verdict, 1837.
Men's inspection of mines, powers under General Rule 38, rarely exercised, evidence as to, 24.
Second enquiry, miners' request for, 212, 219.
Shot-firing between shifts, jury's rider, and inspector's report on, 116.
Watering, insufficient, fatalities increased by, 7627.

New Moss Colliery: Timbering, diagram posted in mine, 2025, 2028.

Newcastle District:
Accidents and death-rate in, 8683, 8801, 8823, 8825, 9095, 9124, 9129.
Inspection of mines after, 8599, 8603, 9026.
Owners, attitude as to, 9029.
West Sleekburn Colliery, use of kibble, accidents caused by, 8938, 8962, 9151.
Workington, 9004.
(*See also subheading* Explosions.)
Agents, qualification of, 8747.
Ankylostomiasis:
No case in, 8969.
Sanitary conveniences, provision, 8972.
Checkweighing, inspector has only had to deal with one complaint as to, 9016.
Depth of mines in, 9218.
Discipline, character as to, 8638.
(*See also subheadings* Fines *and* Prosecution.)
Dust, prevention:
Haulage roads, prevention in, possibility and advisability of, 8683.
Inadequacy of, 8700.
Owners, attitude towards, 8702, 8714.
Explosions:
Number of and death-rate from, 8683.
Stonemen's shift, explosion during, 8871, 8880, 9040.
Wingate explosion, *see that title.*
Fiery mines, number in, as compared with Durham district, 8662.
Fines:
Extent to which inflicted as compared with prosecution, 8646.
Inspection of list by Home Office inspector, 8651.
Gas in pits, amount of, 9419.
Haulage accidents, 8825:
Mechanical safety appliances, use of, 8834.
Inspectors of mines:
Adequacy of inspection by, views as to, 8598, 8604.

Digitized by Google

Newcastle District—*cont.*
Inspectors of mines—*cont.*
Assistant inspectors:
Duties of, 8599.
Number of, 8597.
Quarries and metalliferous mines dealt with entirely by one assistant, 8602.
Clerical work:
Allowance for, and assistance, 8608.
Statistics, compilation of, transfer to Home Office, views as to this suggestion, 8611.
Coroners' inquests, attendance at, 8599.
Districts, size of, 9235
Duties performed by inspector and assistant inspectors, 8599.
Number of inspections, 8604, 9122.
Number of inspectors and of assistant inspectors that would be required to inspect every mine and part of a mine once yearly, 9095.
Inspection of mines by men:
Cost of, borne by the men themselves, 8633.
Extent to which practised, 8628, 8633, 9025.
Value of, 8638.
Inspection of mines by mines officials:
Adequacy of, 8664.
Stonemen and repairers' shifts, examination before, 8664, 8858, 8859, 8873, 9040.
Managers:
Certificate of competency, examination for, 2138, 2170, 8974.
Coal dust, questions as to, 9225.
Fiery mines, question as to, 8976, 8979, 8981.
Two managers for one system of ventilation, instance of, 8746.
Metalliferous mines and quarries:
Depth of, 9434.
Inspection of, 8602, 8612.
Plans, accuracy of, and qualifications of men making, 9085, 9089, 9091, 9290.
Prosecution of men, extent to which practised, as compared with fining, 8661.
Rescue work: ambulance corps and station, proposals as to, 8927.
Safety lamps:
Accidents due to defective lamps, 8775, 8786.
Extent to which used, 8762.
Shot firing, 9274.
Special Rules:
Discussion with men, question as to, 9270.
Number of codes, 8877, 8888.
Objection of men to, view as to, 9269.
Surface, special rules for, 9212.
Temperature of deepest mines, 9219.
Timbering:
Accidents from falls of roof and sides, number of, 8804.
Special Rule, obscurity of, 8804, 9252.
Undersea workings, 9000.
Workington, accident at, 9004.
Ventilation, 8720, 9418, 9419, 9430.
Watering:
Extent of, 8700, 9218.
Kirkup spraying tub, use of, 8700.

North Seaton Colliery, accident at, 8673.

North Wales, *see title* Liverpool and North Wales District.

Northumberland:
Apparatus for raising and lowering men in event of accidents, question as to availability of, 7045.
Discipline in, 9039.
Inspection of mines by men, extent to which practised, 5702, 6077, 9025, 9187.
Inspection of mines by mines' officials, 8668, 8678, 9246.
Rescue station, proposed, 8928.
Shot-firing, 5837, 9274.
Special Rules, number of codes, 8888.
Steam coal collieries, small amount of gas and dust in, 9147.
Timbering:
Special men, employment for, 4436, 5849, 7206, 9247.
Special rules, obscurity of, 9252.
Undersea workings, 9000.
Unskilled workmen, employment in, question as to, 9304.
Ventilation, 9419.

Notice of Accidents Bill, 62, 84, 177, 4469, 4511.

Nottingham:
Accidents, number of, 7339, 9615.
Safety lamps, use of, 9584.
Timbering, small number of accidents, 9615.

Owners:
Discipline, maintenance of, *see title* Discipline, *subheading* Supervision of Owners.
Information supplied by, voluntarily to Home Office, 261.
Inspection of mines by men, position of owners with regard to:
Attitude of owners and managers, 80, 372, 392, 488, 490, 3852, 6617, 7402.
Cost of, contribution from owners, instance of, and views of witness as to whether desirable, 2611, 3481, 9474, 9493.
Rights of owners, protection of, restriction as, to use to be made of knowledge gained in inspecting mines, &c., 4085, 4096.
"Kibble," replacing by better apparatus, men's request for, ignored, 8962, 8966.
Prosecutions, *see title* Prosecution of Owners and *title* Cases.
Responsibility of:
Act of Parliament regulating: Coal Mines Regulation Act, 1887.
Section 20, as to, 35, 37.
Sections 50 and 51, as to, 29, 35, 321, 344, 774, 1364, 1952, 2262, 2266.
Cases, legal, with regard to, *see title* Cases.
Death of manager in an explosion, responsibility of owner in event of, 3069.
Exemption by appointment of manager, views on this point, 36, 319, 343, 512, 639, 767, 777, 782, 1211, 1361, 1604, 3543.
Regulations as to, should not be too detailed, 860, 864.
Returns on particular subjects, increase in powers of calling on owners for, suggestions as to, 255.
Safety lamps, objections of owners to introduction of, *see title* Safety Lamps, *subheading* Objection to Introduction of.
Wagons, improved type of, opposition to, introduction of, instance of, 7664.

Overwinding:
(*See title* Shafts, Accidents in, *subheading* Overwinding).

Plans:
Accidents and loss arising from inaccuracies in, 656, 660, 1232, 1234, 1695, 1697, 2156, 3290, 4789, 4686, 6276, 6872, 7320, 7772, 8170, 8998.
Accuracy of, views as to, 655, 679, 967, 1232, 1260, 1269, 1700, 1729, 1734, 1761, 2159, 2848, 3287, 3792, 4484, 4485, 4489, 5236, 5948, 7849, 7887, 8275, 9290.
Difficulty in proving inaccuracy, 9696.
Inspector's action against manager for inaccurate plans, failure of, 9690.
Reference to qualified surveyor of Home Office, suggestion as to, 9702.
Testing accuracy of old plans, method of, 3792, 5951.
Trespass, action for, resulting from use of old plans, 2159.
Acts of Parliament referring to:
Coal Mines Regulation Act, 1887, Sections 34 and 38 as to, 658, 1255, 1697, 2848, 5439, 5444, 5446, 6879, 7874.
Coal Mines Regulation Act, 1896, Section 4 as to, 9702.
Cases relating to, 2159, 9690, 9702.
Certification of plans, suggestion as to, 2161, 5950.
(*See also subheading* Qualifications desirable for men making and signing plans.)
Check:
Existence of, in inspection by royalty owner's surveyor or landlord's surveyor, 5220, 6261.
Government surveyor to visit districts, view as to, 661, 1740. 1743.
Inspectors, powers of, as to, 1255, 1261, 1271, 1735, 1740, 1745, 2851.
Notice of proposed abandonment of mine to give opportunity for checking of plans, 7852, 7874, 10043.

Digitized by Google

Plans—*cont.*
Deposit at office of the mine while mine is working, and at Home Office when mine is abandoned, regulations as to, and question as to violation of, 5439, 6061, 6265, 6277, 10038.
Suggestion as to deposit at Home Office of plans of, views as to, 662, 3791, 4230, 5222, 5237, 5954, 6052, 6264, 7871, 9702, 10038.
German system, 652, 679.
Managers, qualification of, with regard to, 679, 973, 976.
New plan for all mines that have been disused for twelve months, desirability of, views as to, 5224.
Penalties of owners and managers, 658.
Qualifications desirable for men making and signing plans, views as to, 679, 2159, 2427, 4490, 5215, 5439, 5949, 6254, 6257, 6500, 6888, 7321, 7331, 7857 7883, 7891, 8174, 8993, 8997, 9290, 9696.
Royalty, payment of, in relation to, 7897.
Shrinkage of paper, effect of, on accuracy, 1729.
Ventilation system, plans of advocated, 9690, 9694.

Pneumataphors, or Oxygen Breathing Apparatus, 222, 2118, 2202, 6836, 8927, 8933, 9667.
Station at Shamrock Colliery, 2118, 2121.

Prosecution of Men:
Advantages of, as compared with fining, views as to, and as to class of case suitable for, 30, 314, 502, 1218, 1349, 1571, 1590, 1678, 1918, 1926, 1931, 1939, 2242, 2261, 2304, 2307, 2321, 2436, 2625, 2897, 2903, 3014, 3018, 3110, 3113, 3118, 3281, 3515, 3518, 3527, 3861, 3866, 4100, 4127, 4309, 4322, 4656, 5731, 5986, 6083, 6636, 6643, 6994, 7065, 7188, 7912, 8175, 8238, 8648, 9031, 9035, 9135, 9510.
Cost of, to workmen, as compared with fining, 2304.
Fines for first offence, views as to, 4562.
Cardiff district, *see that title.*
East Scotland district, *see that title.*
Expenses of defence, payment by Miners' Union, 30, 71, 505, 1353, 1943, 2626, 3536, 5024, 5579, 5585
Decline in practise of, 617.
Objections to, in cases where managers are unfairly cross-examined, 505.
Failure of owners to prosecute in suitable cases, possible action of inspectors in cases of, 4545, 4695, 4767, 5015, 5719, 8651, 8659.
Hard and fast rule as to, objections to, 1921, 1939, 2248, 2320, 2436, 2458, 2475, 2942.
Liverpool and North Wales district, *see that title.*
Magistrates, greater discretion to, as to fining or prosecution, advocated, 377.
Manchester and Ireland district, *see that title.*
Matches or tobacco, prosecutions in respect of, Cardiff district, 5472.
Midland district, 9507, 9510.
Number of prosecutions and nature of offences, 1901–5, table showing, 29, 30 *and Appendix IV.*
Report of result to inspector of district, regulations as to, 4913, 4917.
Southern district:
Extent to which practised, 447, 502, 679.
Expenses, payment of, by Miners' Union, 505.
Leader's instructions to men as to, 617.
Swansea district, *see that title.*
West Scotland district, *see that title.*
York and Lincoln district, *see that title.*

Prosecution of Owners or Managers:
Advantage of, and extent to which practised, 446, 679, 3078, 3144, 4657, 4690, 4692, 4695, 5719, 6115, 6172, 6625, 7178, 7767, 7915, 8651, 9192, 10144.
Charter-master system, powers of inspector to prosecute owner in cases of abuse arising from, 6171, 6182.
County Court Judge, trial by, question whether desirable, 4910.
Failure of owners to prosecute men in suitable cases, questions as to prosecution of owners for, 4695, 5719, 8651, 8659.
Institution of new regulations, effect of, 451.
Magistrates, attitude of, 4714, 4878, 4908, 9721, 10147.
Second conviction of manager for offences endangering life should be followed by examination of his certificate, 9721.
Statistics as to, 322 *and Appendix* 4.
Southern district, 446.
Secretary of State, consent of, usually obtained, 4767.
(*See also title* Cases.)

Quarries
Fatalities at, 1200.
Inspection of, 5, 1199, 2526, 2529, 9468, 9795.
Special rules, model code of, and suggestion as to similar arrangement for coal mines, 9651.

Quarry Act 1894, 5.

Railway Sidings and Tramways:
Accidents, number of, on railway sidings and tramways connected with mines under Coal Mines Regulation Acts, 1887, table showing (1896–1905), 196, 2770.
Causes of danger, 196, 2072, 2080.
Code of rules for drafted which would be applicable to mines and factories, 196.
Continental arrangements, comparison with English, 602.
General rules for advocated, 9213.
Improvements in, views as to, 602, 2770.
Inquiry into the Factory Rules under the Factory Act, 1901: Agreement arrived at, and suggestion that similar code should be introduced into mines, 196.
Liverpool and North Wales district, Special Rules in, suggestion as to conversion into General Rules, 1512, 1515.
Manchester and Ireland district, 2072, 2074, 2078.
Space, ample, between wagons and structures or walls advocated for new collieries; difficulty of improving those already established, 2072 2075, 2771.
Special Rules as to, 1512, 1515, 2073, 2078, 9213.

Rescue Work and Appliances:
Act of Parliament: Coal Mines Regulation Act, 1887, Sec. 34, 222.
Adequacy of ambulances and splints, and of rescue appliances, views as to, 3745, 3752, 5900, 6238, 6487, 6836, 7788, 9667.
Compulsory provision, views as to whether desirable, 5899, 6836.
Death resulting from non-provision of ambulances, question as to, 6490.
Ambulance corps and instruction:
Account, general, of, 222.
Durham district, 6841.
East Scotland district, 2842.
Encouragement and extension of, view as to, 222, 2117, 4482, 6844.
Liverpool and North Wales district, 1528.
Manchester district, 2111, 2116, 2203.
Managers and mine officials, compulsion as to holding certificates, views as to whether desirable, 222, 614, 1529, 2114, 2844, 3240, 3747, 4631, 7312*, 8137, 9667, 9710.
East Scotland district examination board, decision as to, 2844.
Manchester district examination board, resolution as to, 2112.
Number of men attending, and possessing knowledge as to use of appliances, 3745.
Swansea district, 4480.
York and Lincoln District, *see that title.*
West Scotland district, 5191, 5194.
Cardiff District, 7786.
Committee appointed by Coal Owners' Association, report of, 2845.
Cost of:
Government grant, question whether desirable, 4013.
Men keeping ambulance at their own expense, question as to, 6489.
Owners' contributions to, 4013.
District stations:
Advisability of provision, views as to, 2202, 5889, 6236.
Attitude of coal owners as to, 2116.
Southern district, consideration of by County Councils, 615.
Suggestions by inspectors in Yorkshire district, and reply of Yorkshire Coal Owners' Association, 222.
Appliances at:
Merits of various appliances, 3753.
Number of appliances desirable at each station, 3759.
Training of men in use of, 3754, 3760, 6240.
(*See also subheading* Pneumataphors.
Durham district, 6835, 6841, 6951, 8928.

Digitized by Google

Rescue Work and Appliances—*cont.*
District stations—*cont.*
Liverpool and North Wales district, 1531.
Manchester district, 2116, 2203.
Newcastle, proposal as to, 8927.
Tankersley station, 2116, 2202.
Yorkshire and Lincoln district, 222, 3751.
Durham District, 6835, 6841, 6951, 8928.
East Scotland district, proposal as to, 2845.
Garforth, W.:
Breathing apparatus invented by, 2119.
Rescue experimental gallery, 2116.
Gallery, fitted up as it would be after an explosion, for training of men in rescue work, 2116, 3753.
German apparatus, 9410.
Liverpool and North Wales district, 1528.
Mauricewood Colliery accident, appliances might have been useful, 8934, 9388, 9403.
Midland district, 9667.
Newcastle District, 8927.
Pneumataphors or oxygen breathing apparatus, 222, 2118, 2202, 6836, 8927, 8933, 9667.
Meyer, Herr, station at Shamrock Colliery, appliances at, 2118, 2121.
Pneumatogen, reliability of, 2121.
Southern district, 614.
Swansea district, 4480.
Testing of appliances, and rejection of bad types, 1534, 3841.
York and Lincoln District, *see that title.*

ROBSON, Mr. J. T., late H.M. Inspector of Mines for the Swansea district, evidence of, 4247–4958.

Rock Drills, use of, 8355.

Royal Commission on Accidents in Mines 1879:
Consolidated and Amended Coal Mines Act, 1887, passed after, 6.
Over-winding, accidents from, report on, 171.
Safety catches for holding cage when rope breaks, report on, 187.
Safety lamps, experiments with, and report on, 115, 9590.
Watering, recommendation as to, 86.

Royal Commission on Explosions from Coal Dust in Mines, 1894:
Failure to arrive at any conclusions, 9562.
Shot-firing between shifts, recommendations as to, 116.
Watering, recommendations as to, 86.

Royalties, payment of, 7897.

Saar Collieries, system of timbering at, 583.

Safety Catches for holding cage, *see title* Shaft Accidents, *subheading* Breaking of Winding Rope.

Safety Lamps:
Abuse of safety lamps in working in firedamp, 546, 672.
Act of Parliament: Coal Mines Regulation, Act, 1887, Section 49.
General Rule 7, as to examination by lamp, and withdrawal of men in case of danger, 97, 830, 2683, 4150, 4572, 4579, 5368, 5795, 5801, 6162, 8722, 9570, 9957.
Amendment or New Act, views as to, 4150, 4572, 4579, 5368, 5795, 5801, 6162, 8034, 8183, 8192, 9570, 9964.
Count Herbert explosion, 5795.
General Rule 8, 75, 104, 830, 2654, 3026, 4807, 5541, 7389, 8763, 9576.
More definite rule, views as to, 104, 1431, 4398, 5096, 5541, 5803, 6115, 6125, 6317, 7680, 7688, 8041, 8334, 10141.
(*See also subheading* Compulsory Introduction.)
General Rule 9, as to construction, 104, 830, 839, 1633.
Test not provided under, 104.
General Rule 10, as to examination of lamps before use, 105, 838, 2699, 3189.
Arbitration as to adoption, omission of in some districts, 381, 409, 415.
Bonnet or shield, use of lamps without, practice as to in some mines, 3632, 3638.
Cannock Chase code, Special Rule 109, as to, 5803, 6205, 6206.
Cardiff District, *see that title.*

Safety Lamps—*cont.*
Care of:
Importance of, 9590.
Special Rule, West Scotland district, suggestion as to similar General Rule, 5298.
Compulsory introduction of, views as to, as to period for which desirable, 520, 526, 1178, 1182, 1434, 1439, 1626, 2654, 3029, 3614, 4165, 4384, 4388, 4399, 4591, 4710, 5088, 5096, 5542, 5803, 6109, 6205, 6719, 7680, 8042, 9578.
Withdrawal after introduction, possibility of, 2659, 3024, 3344.
Cost of use of, as compared with use of candles, 9576.
Cwmbran Colliery, arbitration as to, 855, 1181.
Output after adoption of lamps, 856.
Davy lamps, defects of and prohibition advocated, 836, 4409, 4734.
Dry and dusty mines, use of naked lights in, question as to possibility of, 8520.
Durham District, *see that title.*
East Scotland District, *see that title.*
Electric lighting apparatus, 6041, 6336, 8301.
Examination of, before use, 547, 838, 2692, 2695, 2993, 3189, 3631, 5815.
Explosions in relation to:
Albion explosion caused by electric lamp re-lighter, 8301.
Blaendare explosion, introduction of safety lamps after, 383,
Blantyre explosion, 4412.
Bryncoch explosion, due to bad type of lamp, 115.
Clydach Vale explosion, inspector's report on, 115.
Defective and broken lamps, explosions caused by, 836, 1450, 1967, 2694, 5815, 6126, 7697, 8044.
Dinnington explosion, 8775, 9137.
Fall of roof causing explosion in a sound lamp, possibility of, 6306.
Fochriw explosion, *see title* Explosions, *subheading* Fochriw.
Llest explosion, *see title* Explosions, *subheading* Llest.
Number of explosions, 104, 519, 5815 *and Appendix V.*, 7419, 9576, 9628.
Scotland, number in, 104, 5474, 5483.
South Wales, 104, 5815.
Southern districts, 546.
Extent to which adopted generally, 1188, 1195.
For adoption in different Districts, see title of these Districts.
Falls of roof in relation to use of, 525, 531, 1078, 3066.
Fiery mines, use of naked lights in, views as to, 850.
Forest of Dean, use of, in, 1189.
Gauzes:
Double and single gauzes, 1967, 1972
Use of lamps without:
Accidents, fatal, resulting from, 4403, 4411.
Method of ensuring that gauze is in position, 9595.
Suggestion that lamps should be so constructed that this cannot happen, views as to, 3632, 3642, 4407.
Gunpowder, use of, in mines where safety lamps have not been introduced, danger of, 5115.
Inspection of mines by mines officials: use of safety lamps by firemen in examining roof and sides, 1082, 1779, 1829, 2276, 6706, 7102, 7677.
Inspectors of mines:
Powers of enforcing orders as to upon owners, extent to which used, and views as to whether increase is desirable, 75, 408, 796, 852, 1181, 1184, 4663, 4772, 4803, 4814, 4872, 4879, 5245, 5484, 5542, 5545, 6109, 6316, 7382, 8191, 8334, 9320, 10141.
Recommendations in 1896 and 1899 as to test for necessity for use of, 104.
Liverpool and North Wales district, *see that title.*
Manchester and Ireland district, *see that title.*
Midland district, *see that title.*
Monmouthshire, use of, in, 519.
Mueseler lamp, prohibition of, views as to whether desirable, 4737.
Newcastle district, 8762, 8775, 8786.
Objection to introduction of, on part of owners and men, 104, 853, 858, 1180, 4389, 5087, 5091, 5235, 5375, 5629, 9146, 9589, 9621.
Disuse desired after introduction, instance of, 104.
Erroneous belief that lamps once introduced cannot be withdrawn, 2659, 3024, 3347.
Oils used in lamps, effect of different kinds, as a test of ventilation, 97, 99, 100a, 565, 900, 1971, 2675.

Digitized by Google

Safety Lamps—*cont.*
Partial introduction, views as to, 8178, 9136.
Payments by owner or by men, for upkeep of 5634.
Pit bottom, use of naked lights at, 843, 851, 1224.
Special Rule in Lancashire, 848, 1224.
Screw locks :
Abolition of, desirability of, 112, 533, 535, 1446, 3621, 5100, 5806, 6722, 7689, 8771.
Definition of, 112.
Fochriw Colliery explosion, supposed ignition of gas through unfastening of lock, 112.
Inspectors' discussion with owners as to, and report on result, 112.
Lead rivets, compulsory use with advocated, 9576.
Liverpool and North Wales district, 1446.
Newcastle and Midland districts, use of, in, 112.
Southern district, 534
Shale mines, use of, in, 2657.
Sleeping in charge of, prosecutions for, in Swansea district, 4317.
Somersetshire, safety lamps not used in, 1190.
South Wales, extent to which used in, 5802.
Southern district, *see that title.*
Special Rules :
East Scotland district, 2690.
Lancashire, 848, 1224, 6205, 6207, 8042, 8178, 8337.
Liverpool and North Wales district, 104, 1436, 1438, 1443.
Manchester, Liverpool, and Staffordshire districts, establishment in, 104, 1438, 1448.
Negotiation with owners, rule for, put forward in 1899 and 1901, opposition of owners to, 104.
South Wales, attempt to establish in, in 1894 and 1895, 104.
Locks, provision as to, 112.
Spirit lamp :
Cap shown on, when no gas is present, 2675.
Manchester and Ireland district, 2175.
Introduction of, in Yorkshire, 1979.
Swansea district, *see that title.*
Testing of lamps, or types of lamp, 104, 839, 2694, 2988, 3185, 4403, 4408, 5807, 5818, 6306.
Act of Parliament : Coal Mines Regulation Act 1887, General Rule 10, 105, 838.
Conditions difficult to reproduce, 1969.
Manchester and Ireland district, 1969.
Official system of, views as to desirability of establishing, 114, 540, 824, 840, 1445, 1449, 1637, 1778, 1967, 1971, 3627, 4731, 5101, 5808, 6049, 6726, 6937, 7690, 7704, 8048, 8773, 8774.
Belgium, station established in, 115.
Home Office, powers of, with regard to establishment of, 825.
Proportion of lamps probably discarded, 3828.
Use of official station for testing explosives, suggestion as to, 9590.
Photometric tests with safety lamps and candles, 9621, 9633.
Private stations, 4730, 5808.
Southern district, practice as to, in, 547.
Wigan Coal and Iron Company, testing station at, 1969.
Type of lamps :
Good types, 7694.
Importance of, as compared with care of lamps, 9590.
Responsibility of owner and manager as to choice of types, 540, 833.
Royal Commission on Accidents in Mines, experiments and recommendations as to different kinds of lamps, 115.
Rules as to any particular type inadvisable, 545, 672, 824, 859, 4402, 4407, 4409, 5101, 5807.
Wages, increase demanded in event of adoption of, 413, 1194, 4392, 5090, 5375, 5632, 9576, 9843.
West Scotland district, *see that title.*
York and Lincoln district, *see that title.*
(*See also title* Ventilation.)

Sanitary Conveniences, *see title* Ankylostomiasis, *subheading* Sanitary Conveniences.

Scotland :
Accidents : investigation into :
Act of Parliament : Fatal Accidents Inquiry (Scotland) Acts :
Act of 1895, 211, 2560.

Scotland—*cont.*
Accidents : investigation into—*cont.*
Act of 1906, 3500, 3504, 5166, 5647.
Adequacy of views as to, 2834, 2836, 3072, 5647.
Number of second enquiries previous to passing of, 2290.
Day set apart for, once a fortnight, 8909.
Jury, suggestion as to enquiry without, 5173 5183.
Number of accidents, 7339.
Prohibition of certain classes of questions, 2541 2908.
Publicity of enquiry, 2362.
Sheriff, enquiry conducted by, 2833, 5173, 5183.
Witnesses, notice to, as to questions which may prove incriminating, 2541, 2548, 2561, 2834, 2838, 2908, 3072. 3363.
Agreement between employers and men, 9019, 9022.
Checkweighing, 9012.
Discipline, defective, 5012, 5558.
Reports, Sir Clement Foster's 1901-2, references to, in, 30, 5012
East Scotland district, *see that title.*
Foreigners, employment of, 9315.
Explosives, use of, in, 5386.
Inspection of mines by mines officials :
Number of inspections during a shift, decrease in, after passing of Act of 1887, 5058.
Timbering, inspection by firemen, 3021.
Lamps :
Oil lamps, Scotch, objection to, 9637.
Safety lamps, *see that subheading.*
Managers :
Certificate of competency, examination for, 9679, 9785.
Two managers to one system of ventilation, 8741, 8745, 8754, 9068.
Plans, accuracy of, and qualifications of persons making plans, views as to, 9295, 9297.
Prosecution of men :
Procedure, 4988, 5302.
Cost borne by Procurator Fiscal, 5019.
Refusal to prosecute, possibility of, 4993.
Safety lamps :
Inadequate use of : too many mines worked with naked lights, 5483.
Inspectors of mines, attempt by, to secure introduction of, 5087, 5089.
Shaft, single, prosecution in respect of, 9340.
Shot-firing in oil and shale mines, 8789.
Special Rules :
Consultation of men not practised, 5507, 5530.
Timbering, system in, 3021, 8806.
West Scotland district, *see that title.*
Women, employment at pit bank, 7359.

Scottish Fatal Accidents Inquiry Act Amendment Act, 1906, 3500, 3504, 5166, 5647.

Screening Plant, dust from, 1406, 1990.
Distance from downcast shaft, suggestion as to, 3568
Removing, 4533, 8410, 8413.

Seaham Colliery Explosion :
Cause and extent of and manner in which explosion traversed the intake roads, 6353.
Watering of haulage roads, question whether explosion might have been prevented by, 6396.

Shafts : Accidents in :
Account, general, of, 160.
Banksman or bottomer employed at all mouthings in West Scotland district, 5421.
Breaking of winding ropes :
Death rate from, in England, France, and Germany, 187.
East Scotland district, 2747, 2769.
Guide ropes and spare ropes, suggestion as to, 188.
Recapping of rope periodically :
Cap and socket, description, 3721.
General Rule as to recapping, views as to whether desirable, 190, 1508, 2067*, 2757, 2761, 3719, 3728, 9722.
Inspectors, experiments as to, 191, 194.
Special Rules in force in some districts 190, 599.
Testing of winding rope and fittings, 1509.
Lancashire district, testing in, 1756.
Reports to the inspector of the district advocated, 4466.

Digitized by Google

Shafts: Accidents in - *cont.*
Breaking of winding ropes—*cont.*
Safety catches for holding cage in cases of:
Compulsory use of, views as to whether desirable, 598, 906, 912, 1507, 2067, 2765, 3715, 5868, 6341, 6800, 7343, 7754.
East Scotland district, 2767.
France, Germany and Belgium, regulations as to in, 187, 596, 911, 978, 1244.
Hanley, A., appliance invented by, 2507.
Home Office enquiry in 1902, 187.
Inspectors' report in 1903, 187.
Manchester district, extent of use of, in, 2062, 2505.
Owen's principle, 2062, 2067.
Principle of, 902.
Royal Commission on Accidents in Mines, Report on, 187.
Testing, necessity for, 2507.
Transvaal Government Commission, reference with regard to, 978.
Wood and wire guides, 598, 904, 911, 913, 2063.
Breaks on winding engines, stronger, advocated, 8840.
Death rate from, 160, 162, 187, 194 *and Appendix VII.*
Gates or bars at open end of cage:
Automatic gate adopted in Yorkshire and Lincoln district, 3721.
Compulsory use of, views as to whether desirable, 194, 596, 1511, 2069, 2764, 3326, 3721, 5144, 9722.
Death rate in 1904 from men falling out of cage, 194.
Germany, compulsory use in, 194, 596.
Lancashire, holding-on bars, Special Rules as to, in, 1511.
Manchester and Ireland district, 2069, 2071.
Mid-workings, men falling from, 5144, 5417.
Number of accidents and death-rate from, 160, 162, 187, 194, 595, 2747, 3714, 6796, *and Appendix VII. and XVII.*
Number of men sent down in a cage, 5871, 6342, 6474, 6486.
Overwinding:
Definition of accidents arising from, 176.
Detaching hook (visor) or other means of preventing over-winding, 598, 2059, 2518, 2748, 2750, 2752, 2756, 2758, 3203, 5872, 6231, 6343, 6802, 7345.
Cost and efficiency of various types, 2518.
East Scotland district, number of accidents in, 2747.
Cause of, 2753.
Enginemen:
Competency of, and views as to whether a certificate is necessary, 162, 418, 595, 1506, 2059, 2756, 3071, 3207, 3313, 3714, 5870, 6468, 6469, 6798, 7117, 7275, 7431, 7436, 8313, 9361, 9722, 9866, 10128.
Accident resulting from employment of unskilled engine-driver, 9363, 9368.
Act of Parliament: Coal Mines Regulation Act, General Rule 24 as to competency, 162, 173.
Appointment should rest with manager, 8313.
Inspection, reports on, 171, 388.
Legislative proposals with regard to, 162, 177, 387, 418.
Select Committee of House of Commons, 1901, Report of, on, 172.
Death of enginemen while in charge, instances of, 3325.
Double shifts, enginemen working, 6482.
Two engine-drivers, employment of, when large number of men are in the cage, views as to, 3321, 6486.
Number of accidents from over-winding, 162, 3714, *and Appendix VIII.*
Royal Commission on Accidents in Mines, Report of a, 171, 187.
Trades Union Congress 1905, suggestions and recommendations as to, and reports of inspectors on these suggestions, 177, 179.
Weight of cages when loaded, 907.

Shafts, number of: meaning of "Two shafts or outlets," 9334.
Case as to, 9340.

Shakerley Colliery Explosion, 1967.

Shale Mines:
Explosions, small number of, 2657.
Explosives, purchase by miners from owners, compulsion as to, 2717.
Safety lamps, use of, in, 2657.
Shot-firing:
Lighting of shots, 3037.
Number of shots fired annually, 2709.
Special Rule as to number of shots fired simultaneously, and as to miss-fire shots, 2709.

Shamrock Colliery, Herr Meyer's rescue station at, 2118, 2121.

Shot-firing:
Acts of Parliament and Orders regulating, 116, 556, 806, 1385, 1392, 1395, 2003, 2006, 2180, 2341, 2704, 9603.
Gaseous mines, extension of provisions to, views as to, 806.
Additional precautions, desirability of, under consideration by Secretary of State, 116.
Between shifts:
Circular letter to owners as to, 7709.
Coal-cutting machinery, increase of this practice owing to, 3652, 3655, 3657.
Explosives would not be in charge of men in event of, 2557.
Extent to which practicable, and to which it should be compulsory in dry and dusty mines, 116, 566, 2282, 2356, 3834.
National Colliery explosion; jury's rider on and report of inspectors thereon, 116.
Inspectors, resolution passed by at annual meeting in 1906, 116.
Limitation, suggestion as to, 9601.
Liverpool and North Wales district, 1786.
Manchester and Ireland district, 2356.
Prohibition of shot-firing except between shifts, views as to, 116, 1457, 1640, 1646, 1785, 2282, 2703, 3652, 4417, 4518, 5819, 6735, 7249, 7707, 8053, 8054, 8293, 8344, 8427, 8787, 9275, 9600.
Royal Commission on Explosions from Coal Dust, 1894, recommendations of, as to, 116.
Southern district, practice as to, in fiery mines, 566, 570.
Swansea district, 4837.
Coal-cutting machinery, use of, and its effect on shot-firing, 3652, 3655, 3991, 5557.
East Scotland District, *see that title.*
Electricity, shots fired by, 3042, 6201, 7256.
Explosions from:
Brancepeth, 7470.
National Colliery explosion, report on, 116.
Number of, decrease in, 116.
Wingate explosion, 6675, 7449.
Yorkshire district, 3567.
Explosives, *see that title.*
Fuses, 3037, 3042.
Types advocated, 3155, 5380.
Increase in number of shots fired, 5382.
Coal-cutting machinery, introduction of, effect of, 3991.
Inspectors, increased powers as to, advocated, 4842
Lamp for testing before firing shot, suggestions as to, 565.
Liverpool and North Wales district, 1457, 1613, 1786.
Men or officials firing shots, practice as to, and views as to, 1644, 2353, 2355, 3154, 9601.
Miss-fire shots:
Danger arising from, 116, 2366, 5106.
General Rule as to, 1287, 1460.
Recovery of detonator:
General Rule as to, 1286.
Owners, attitude as to, 1282.
Special Rules, 1282, 9598.
Special Rules as to, 116, 3659, 5107, 5110, 8794.
Cited, 3659.
East Scotland district, 2709.
Liverpool and North Wales district, 1282 1460, 2724.
Manchester district, Special Rule, conversion into General Rule, views as to this suggestion, 2008, 2365, 2369, 4424.
Southern district, 572, 1282.
York and Lincoln districts, no Special Rule in, 3658.

Digitized by Google

Miss-fire shots—*cont.*
Term "hang fire shots," 2709.
Unramming a shot:
General Rule as to, 1287.
Special Rules as to, 572, 1282.
Number of shots lighted simultaneously, 141, 2709, 2712, 3041, 3355, 3356, 3656, 3993, 5826, 6738, 8788, 8793.
Danger, chief, from, arises from miss-fire shots, 5106.
Inspection specified under General Rule 12 should be made when more than one shot is to be fired simultaneously, 6740.
Special Rule, prohibition by, in certain districts, 5826, 5837.
Shale mines, 2709, 3031, 3355.
Southern district, 566, 1282.
Stone drifts and working face, distinction advocated, 2283.
Substitutes for:
Champion channelling machine, 8366.
Hydraulic wedges, 8349.
Rock drills, 8355.
Swansea district, *see that title.*
Testing of detonators, batteries, and cables, necessity for, 4008.
Watering in neighbourhood of a shot, 551, 1386, 1613, 2005, 6188, 6195.
Floor, effect of on, 1388, 1398, 2007.
General Rule as to, 116, 556, 557, 1385, 1392, 1395, 2003, 2180, 2341.
Lancashire, practice as to, in, 1389, 1613.
Manchester and Ireland district, 2003.
Withdrawal of men during, 806.
Discretion of manager as to, views as to, 810.

Size of Mines in relation to safety, 1768.

Slate Mines (Gunpowder) Act, 1882, 5.

South Wales District:
Arbitration case (1893–5), 200, 353, 381, 2400, 2402, 2406.
Division in 1901 into Cardiff district and Swansea district, 4249.
Plans, 9294.
Royalties, 9291.
Size of, too large before division, 4251.
Superintending inspector, duties of, 5669, 6146.
Watering in, 9537.
Women, employment of, in, 8513.
(*See also titles* Cardiff District *and* Swansea District.

Southern District:
Accidents: investigation into: coroners' inquests:
Adequacy of, 604, 1125.
Attendance at, of inspectors and assistant inspectors, 453.
Home Office, representation by counsel at, 609.
(*See also subheading* Explosions.)
Ankylostomiasis:
Special rules for sanitary conveniences in Cornish mines, 617.
Boiler explosions: number of, at collieries and metalliferous mines, 594.
Discipline: enforcement of:
Apologies, system of, 502, 504, 681, 1223.
Choice of men as to enforcement of, 1217, 1222.
Legality of, 1218.
Number of, 502, 1217.
(*See also subheadings* Fines *and* Prosecutions.)
Explosions:
Decrease in number of, 515.
Causes to which attributable, 519.
Explosives: supply by owners to men, extent of practice, 581.
Haulage accidents, number and cause of, 588.
Inspection of mines by men:
Extent to which power is exercised, 472, 1210.
Increase of practice, views as to whether desirable, 479, 494.
Objection to, by managers, cases of, 488.
Qualification of men making examination, 697.
Inspection by mines officials:
Adequacy of, 509.
Districts, size of reduction desirable, 717.
Hours of work and duties of firemen, 1056, 1067, 1072.
Number of inspections during a shift, attempt to introduce special rules as to, 510.
Inspectors of mines:
Adequacy of inspection, 436, 685, 992, 1000, 1011.
Advice to leaders to urge men from working in dangerous places, 1146.
Assistant inspectors:
Number of inspections by, 439, 680.
Qualifications of, as to surveying, 1276.
Clerical work:
Allowance for: increase of, effect of, with regard to inspection, 467.
Amount done by assistant inspectors, 679.
Transfer of, to Mining Statistics Branch of Home Office, views as to whether desirable, 666.
Coroners' inquests: attendance at, by inspectors and assistant inspectors, 453, 679.
District, size of: number and size of mines, 474, 983.
Number of, adequacy of, 1199.
Number of inspections, 986.
Prosecution of owners: number of cases from 1895 to 1905, 446, 679.
Manager's certificate of competency, examination for:
Candidate's experience, investigation into, 959, 961.
Change of system, views as to whether desirable, 618.
Fiery mines, knowledge of, not necessary, 618, 962.
Passing in each subject, requirement as to, 628.
Metalliferous mines:
Manager's certificate of competency, views as to whether desirable, 640.
Number of, and persons employed in, 980, 982.
Temperature, excessive, cases of, 1241.
Number and size of coal mines in, 474, 979.
Number of persons employed in, 982.
Output in 1888 and 1905, 1077.
Owners:
Prosecution of, 446, 679.
Responsibility of, where managers are not given a free hand in management, 1211.
Plans:
Accuracy of, views as to, 655, 679, 1232.
Inundation, cases of, through inaccuracy of, 660, 1234.
Inspectors' powers of checking, exercise of, 1255.
Prosecution of men by owners:
Extent to which practised, 447, 502, 679.
Objections to, 1219.
Payment of defence by Miners' Union, 505.
Leader's instructions to men as to, 617.
Prosecution of men by inspectors, 447, 679.
Prosecution of owners, 446, 679.
Quarries: fatalities in, compared with coal mines, 1200.
Rescue work and appliances:
Ambulance classes and instruction:
Under-officials, certificates held by, 614.
Witness' action with regard to, and results of, 614.
Rescue corps and station, provision of, under consideration by county councils, 615.
Railway sidings: improvement needed, 602.
Safety lamps:
Accidents from falls of roof, effect on, of introduction of, 525.
Examination of, practice as to, 547.
Explosions from naked lights, 546.
Inspectors' efforts with regard to introduction of, 852.
Number of, in use, and number of persons employed in 1875 and 1905, 525, 1181.
Objection by owners and men to introduction of, 853, 856, 1180.
Screw locks:
Inspectors' efforts as to, 536.
Number of, in use, 534.
Wages, increase demanded by men in event of introduction of, 1194.
Shaft accidents:
Enginemen, competency of, 595.
Number of, very small, 595.
Recapping of winding rope, Special Rule as, to, adequacy of, 599–601.

Digitized by Google

Southern District—*cont.*
Shot-firing:
Between shifts, practice as to, 566–71.
Miss-fire shots: Special Rule as to, 572–8, 1282.
Special Rules, number of codes in, and efforts made by inspectors for reduction of 603.
Timbering:
Accidents from falls of roof at the face, death rate from, 582, 1076.
Decrease in, since introduction of safety-lamps, 525, 1076, 1081.
Condition of roofs, 1087.
Shortage of timber, cases of, reasons for, 1213.
Special Rules as to, effect of, 582.
Unskilled labour, employment of, 1089.
Ventilation: safety lamps, indications furnished by, 565.
Watering:
Extent of, 548.
Systems in use, 549, 561.

Special Rules:
Acts of Parliament, referring to:
Coal Mines Regulation Act, 1887, Sections 51, 58, and Coal Mines Act, 1896, Section 1, 200, 304, 923, 2398, 3213, 9205.
Administration and observance of, 200, 2928, 2931.
Advertisement of proposed Rule by Secretary of State to give opportunities for statement of objections, suggestion as to, 7295, 8095.
Arbitration:
Costly and lengthy nature of, and necessity for reform in this respect, 200, 354, 515, 934, 939, 2082, 2404, 2509, 2512, 2809, 3740, 4194, 4200, 4443, 4445, 5160, 8110, 9650.
Home Office, negotiations with industry in order to avoid arbitration, instance of, 200.
Necessity for, if representatives of owners and men fail to agree, 2811, 3209, 4443, 4450, 4608, 7295, 7760, 8089, 8095, 9648, 10032.
Nomination of arbitrator, 930, 4610.
Suggestion as to one arbitrator to be nominated by the Home Office, 8109.
Procedure described, 930.
Safety lamps, introduction of, without arbitration, instance of, 381.
South Wales arbitration (1893–5), 200, 353, 381, 2400, 2402, 2406.
(*See also subheading* Factory Acts.)
Assimilation to character of, or embodiment in, General Rules, or conversion into General Rules, views as to, 200, 202, 308, 603, 869, 1518, 1577, 1659, 2089, 2723, 2772, 2828, 2934, 3209, 5164, 5884, 6830, 7767, 8796, 8892, 9647, 9653.
Bill introduced by Sir Charles Dilke in 1903, 357.
Board, advisory, to Secretary of State, appointment advocated, 603, 918, 927.
Compliance of workman with, obligation as to, 5519.
Compulsory in every mine under the Coal Acts, 200.
Contravention of, report of, by workmen to officials, obligation as to, 5520.
Copies of, supply to men, 9205.
Court of enquiry, right of owner to place his views before, 4204.
Discussion between owners' representative and men's representative, or owners and men and inspectors, views as to, 1517, 1520, 1663, 1831, 2093, 2401, 2410, 2452, 3341, 4009, 4442, 4445, 4448, 4452, 4459, 4611, 4616, 4920, 5163, 5503, 5505, 5522, 6495, 6806, 6817, 6945, 7283, 7295, 7441, 7763, 8088, 8464, 9270, 9273, 9647.
Durham district, number of codes in, 310, 358, 6744, 6828.
East Scotland, *see that title.*
Electricity, uniform code established, 6, 200.
Enforcement of code, 19.
Factory Acts, 1891 and 1901, procedure under:
Comparison with Special Rules for mines, 200, 295, 305, 916, 924, 1518, 1521, 2084, 2387, 2399, 4195, 4212.
Suggestion that similar system should be established for mines, views as to, 200, 202, 294, 916, 919, 1518, 2086, 2811, 2813, 3739, 4194, 4206, 4245, 4444, 5161, 5876, 6810, 7304, 7310, 7760, 8883.
Foreign languages, translation into, 2303.
Germany, system in, 603.
Individual rules for each mine, 200, 310, 2087, 4595.
Objections to this method, 5156, 5159.
(*See also subheading* Uniform codes, views as to whether desirable.)

Special Rules—*cont.*
Introduction of: cumbrous and unsatisfactory method of, necessity for reform, etc., 200, 603, 915, 1517, 2081, 2087, 2385, 2809, 2818, 2822, 2930, 3211, 3739, 4200, 4441, 5874, 6294, 7757, 8118, 8858, 8886.
(*See also subheading:* Arbitration *and* Factory Acts *and* Discussion.)
Length of, extreme in some cases, 200.
Liverpool and North Wales district, 1523.
Manchester and Ireland district, 2081, 2083, 2093, 2411, 2452.
Model code, applicable to all mines, to be drawn up by Secretary of State and inspectors, suggestions as to, and as to additional local codes, 9647, 9653, 9780, 9996, 10021.
Newcastle district, 8877, 8868, 9212, 9269.
Number of, reduction of, views as to, 8769, 9268.
Object of, and principle on which drawn up, 200, 309, 926, 1518, 1660, 2089, 2091, 9209.
Objections to, time allowed for hearing, reduction advocated, 2827.
Responsibility for, 925, 937.
Southern district, number of codes in, and reduction since 1887, 603.
Suggestion of Special Rules by miners, views as to, 4451, 7443, 8473.
Suggestion by owners, or managers or agents, 2396, 2398, 8467.
Surveys, reform of Special Rules as to, advocated, 10054.
Uniform codes, views as to whether desirable, 200, 307, 361, 2828, 4600, 5157, 5164, 5879, 6807, 7758, 7765, 7767, 9149
Model code, for use in all mines, and additional local codes, suggestions as to, 9647, 9653, 9780, 9996, 10021.
Right to object, suggestions as to, 4601.
Yorkshire and Lincoln district, Special Rules in, amendment advocated, 3740.

Spiring, definition of, 1977.

Stafford District:
Charter-master system in, 34, 5742, 6096, 6177, 6458.
Death-rate, 5703, 5843, 5861.
Discipline, 6093.
Fines, extent to which inflicted, 6091.
Haulage accidents, 5861.
Inspection of mines by men, extent to which practised, 5694, 5702, 5707, 6075.
Inspection of mines by mines officials, 5734, 5742.
Intoxicating liquor, taking down mines, absence of any Special Rule for prevention of, 6179.
Sanitary conveniences, provision, 5911.
Shot-firing, Special Rule as to, 5837.
Special Rules, number of codes, 5879.
Timbering:
Consultation of men as to Special Rules, 6494.
Special instructions *re* timbering and packing, 5855, 5859, 6133.
Uniform code, undesirability of, 6137.

Steam Engines (Persons in Charge) Bill, 162, 419, 7124, 7282.

Stocksbridge Mine:
Explosives, purchase of, by men, instance of, 3662.

STOKES, Mr. A. H., inspector of the Midland district evidence of, 9460–10167.

Stokes *v.* **Checkland**, 35, 331.

Stokes *v.* **Mitcheson**, 35, 334.

Surface Sidings and Railways: Accidents, prevention of, suggestions as to, 3738, 9212, 9722.

Strata, comparison of, in different districts, 1087.

Surveyors of Mines:
Certificate of competency, necessity for, 648, 965, 970, Independent of manager's certificate, advocated, 977.
Mines Act, amendment as to, advocated, 972.
German surveyors, comparison with, 648, 650.
Inefficiency of, 648, 654, 1269.
(*See also title* Plans, *subheading* Qualifications of Men for making Plans.)

Digitized by Google

Swansea District:
Accidents:
Investigation into:
Coroners' inquests, adequacy of, views as to, 4796, 4798.
Second enquiry, witness knows of no instance of, in this district, 4475, 4928.
Number of, in, 4337.
(*See also subheading* Explosions.)
Ankylostomiasis:
No cases of, in, 4491, 5910.
Sanitary conveniences, provision, 4493, 5911.
Anthracite coal, proportion of, in, 4386.
Dangerous character of some mines, 4256.
Discipline:
Character as to, 4323, 4542, 4553, 4817.
Discharge, punishment by, 4554.
(*See also subheadings* Fines *and* Prosecutions of Men.)
Explosions:
Naked lights, explosions from, 4394.
Ventilation, defective, explosion on January 21st-1905, caused by, 4339.
Watering, effect of, in arresting, instance of, 4361.
(*See also subheading* Accidents.)
Explosives used in, 4516.
Fiery mines, number of in, as compared with Cardiff district, 4314.
Fines:
Apology, posting, objection of men to, 4558.
Discipline in mines in which fining is not practised, 4547.
Extent to which fining is practised, 2323, 4301, 4819, 5713.
Foreign workmen, unskilled, employment of, 4933, 4944, 6539.
Inspection of mines by men.
Employment of men belonging to the mine, not always practised; outsiders sometimes appointed, 4272, 4881, 8533.
Extent to which practised, 4266, 4293, 4299, 4539.
Number of inspections monthly, 4268.
Inspection of mines by mines officials:
Adequacy and efficiency, views as to, 4333.
Number of inspections under Special Rules, 4327.
Districts, size of, 4334, 4894, 4896, 4900.
Number of inspections during the shift, 4847.
Other work performed by: abolition of this custom, views as to whether desirable, 4902.
Special Rules as to, 4327.
Desirability of making the Special Rule a General Rule, views as to, 4330.
Inspectors of mines (Home Office inspectors):
Assistant inspectors, number of, adequacy of, 4254, 4633.
Clerical assistance:
Allowance for, views as to adequacy of, 4261.
Amount of and method of dealing with, 4260, 4262.
District, size of, 4255, 4257, 5676, 7569.
Number of inspections made by, and by assistants, 4257, 4635.
Superintending inspector, 5669, 5673, 6146.
Manager's certificate of competency, examination board, 5917.
Plans: accuracy of, questions as to, 4484.
Prosecution of managers or owners, questions as to, 4303, 4657, 4691.
Prosecution of men:
Discipline in mines in which prosecution is not practised, 4547.
Extent to which practised as compared with fining, 2323, 4301, 4819, 5713.
Number of, comparison with other districts, 4306, 4313, 6452.
Sleeping in charge of a safety lamp:
Prosecution for, 4317.
Special Rule with regard to, 4320.
Rescue work and appliances:
Ambulance corps and classes, 4480.
Safety lamps:
Accidents due to, questions as to, 4410.
Difficulty experienced by inspector in attempts to introduce, 4397, 4581, 4664.
Examination and testing of, 4403, 4411.
Explosions from naked lights, 4394, 5815.

Swansea District—*cont.*
Safety lamps—*cont.*
Extent to which adopted: naked lights used in some mines where a little gas is occasionally seen, 4382, 5802.
Objections of men to introduction of, 4389, 4391.
Owners, attitude of, towards, 4389, 4391.
Prosecution for breach of Rule 8, not attempted of late years, 4582.
Screw-lock lamps, gradual disuse of, 4400.
Special Rule for, failure to introduce, 4397, 4581, 4664.
Shot-firing:
Accidents, decrease in number of, 4415.
Anthracite mines, 4838.
Between shifts, 4837.
Prohibition in certain cases advocated 4518.
Dangerous mines, marking off by inspector, views as to, 4756, 4837, 4841.
Electricity, firing by, 4524, 6201.
Timbering:
Accidents from falls of roof and ground, number of, 4427, 5839.
Special Rules:
Consultation of workmen as to, 6494.
Working of, 4430, 5839.
Undersea workings, 4512, 4683.
Unskilled labour, 4933, 4944, 6535, 6539.
Wagons, type used, 4828.
Water from old workings, 4684.
Watering:
Extent of, 4354, 6014, 6438.
Explosions, arrest by, 4361.
Women, employment of, 6532, 8513.

Talk-of-the-Hill Colliery Explosion, 91 222.

Timbering:
Accidents in relation to, 582, 1076, 1483, 1568, 1705, 2021, 2193, 2601, 2725, 3010, 3191, 7730, 8071, 8074, 9287, 9533, 9606, 9621, 9748.
Age of men in relation to accidents, 6285, 8438.
Apparently safe places, accidents in, 8812.
Carelessness of men as cause of, 3809.
Inspection of mines by mines officials, in relation to timbering accidents, 3541, 6918 7109, 7205, 7722, 7730, 8076, 8254, 9748.
Inspectors' conclusions and recommendations as to, in 1903 and 1904, 143, 153.
Special Rules, increase in number of accidents since introduction of, *see sub-heading* Special Rules.
Statistics as to, 142, 147, 582, 1076, 1080, 3810, *and Appendix VI*, 6754, 7010.
Arley Mine, system in force at, 2029, 2190, 2463.
Bars set across the face, number of, increase advocated, 3680.
Compulsory barring advocated, 9750.
Butties, supply of timber by, objections to, 6100.
Compulsory development of systems of timbering, views as to, 583, 3192.
Courrières Colliery, *see that title.*
Crown or head-piece extending beyond top of the prop, suggestion as to, 7426.
Drawing of props:
Accidents, 1705, 2732.
Gablock and chain, use of, 2034, 3702.
Durham system, 3023, 3309, 6754, 7006, 8678.
East Scotland, *see that title.*
General Rules:
Amendment of General Rule 22, views as to, 6774.
Difficulty as to, owing to different conditions in mines, 3681, 3683.
Return to General Rule 21, views as to whether desirable, 4432, 4440, 4591, 5392.
German Commission on Falls of Roof and Sides, 583.
Inspector, right to object to distance fixed by manager, suggestion as to, 1483, 1569, 2377.
Inspectors' conclusions and recommendations in 1903 and 1904, 143, 153.
"Instructions, special, *re* timbering and packing," 5855, 5859, 6133, 6215.
Manager's discretion as to distance between props, 1483, 1569, 2035, 2466, 2496, 6767 7030, 7260, 7719, 9611, 9860.

Digitized by Google

Timbering—*cont.*
Manchester and Ireland District, *see that title.*
North of England, custom as to, 5400, 5849, 9755.
Prosecution of men for defective timbering, views as to, 3814.
Repairing of timbering, 583.
Saar Collieries, system at, 583.
Safety lamps, use of, and effect of in relation to falls of roof, 525, 532, 1078.
Scotland, system in, 3021.
Shortage of timber, reasons for, 1213.
Special men, employment of, views as to whether necessary, 2727, 2736, 3020, 3194, 3312, 3678, 3688, 4435, 4845, 5123, 5389, 5396, 5847, 9247, 9640.
Cost of, as compared with present system, 2727.
(*See also titles* Durham *and* Northumberland, *subheading* Timbering)
Special Rules as to:
Accidents, number of, since introduction of, unsatisfactory working of the rules, &c., 142, 147, 582, 1483, 1484, 1568, 2725, 2734, 3674, 4430, 4920, 5118, 5388, 5839, 6284, 6492, 6754, 9611.
Age of men in relation to accidents, 6285.
Cardiff and Swansea district, 5839.
Comparison with General Rule 21, and view as to whether return to this Rule is desirable, 4432, 4440, 4591, 5392.
Consultation of workmen as to, practice as to, 148, 200, 4010, 6494, 9258.
Durham district, 3023, 3309, 6754, 7006, 8678, 9252.
East Scotland district, 2724, 2735, 2738, 3190, 8806.
Explanation of rules to men, instance of, 2726, 3190.
Increased number of Special Rules, and greater stringency, views as to, 3681, 5842, 6215, 6493.
Lancashire, Special Rules, 2020, 2025, 2372.
Liverpool and North Wales district, 1482, 1568, 1702, 1789.
Manchester and Ireland district, 2020, 2376.
Midland district, 9611, 9859.
Newcastle district, 8804, 9252.
Southern district, 582.
Stafford district death rate from falls of ground, 5843.
Standard of safety raising advocated, 5842, 5851, 6281.
Uniform code, views as to, 6137, 9264.
West Scotland district, 5118.
Strata, variations in, in relation to, 1087.
Supervision of men by deputies advocated, 6757, 6761.
Withdrawal of man in case of danger, unless he is capable of setting timber, General Rule as to, 3698.

Timsbury Colliery Explosion, 1227.

Transvaal Government Commission on Safety Catches and Appliances, terms of reference, 978.

Truck Acts:
Checkweighing, dismissal of man for bringing up dirt, alleged breach of Truck Act, 3821.
Fines, provisions as to, 1777, 1923, 1925, 2620, 4702, 4709.
Inspectors, duties of, under, 9.
Purchase of explosives from owners by men, bearing of the Truck Act on this suggestion, 120, 122, 2184, 2722, 5637.

Trams, *see title* Wagons.

Tramways, *see title* Railway Sidings and Tramways.

Tubs, *see title* Wagons.

Tylorstown Explosion, 4799.

Underground Communications:
After-damp, danger from, increased by extensive underground communication, 8295.
Courrières accident, loss of life increased by, 5763.
Familiarity of men with, importance of, and question whether finger-posts are desirable, 8502.
Limitation of, views as to whether desirable, 5763, 7793.
Watering, suggestions as to, 7787, 7796.

Undersea Workings:
Act of Parliament regulating: Coal Mines Regulation Act, 1887, Section 42, as to, 2791, 2797, 2798, 3239, 6231.
Boring to test safety, 9000, 9006, 9009, 9094.
Control by Office of Woods and Forests, 2780, 2787, 3222.
Cumberland and Durham, 5959.
Depth of crust, manner in which ascertained, 7131.
Durham, 6894, 7128.
East Scotland district, mine worked too near sea bottom, 2775, 3218, 3332, 3336.
General Rules, not applicable to, 2797.
Newcastle, 9000.
Report by New South Wales Government on, 6898.
Special Rules, question as to, 6900.
West Scotland district, 5229.
Working, method of, 5233.

Universal Colliery Explosion (1901), 89, 116, 8583.

Unskilled Workmen:
Act of Parliament: Coal Mines Regulation Act, General Rule 39 as to employment of experienced workmen, 362, 3951, 4934, 6466, 8539, 8541.
Employment of, 1088, 1792, 3402, 8339, 8435, 8541, 9304, 10109.

Usworth:
Inspection after explosion, 8620.
Safety lamps, use of, without gauzes, 3632.

Ventilation:
Accumulation of gases:
Boarded up and marked dangerous, question as to, 5620.
Removal before men are allowed to work advocated, 3351.
Act of Parliament regulating Coal Mines Regulation Act, 1887, Section 49, General Rule 1 as to ventilation, 97:
Amendment of and clearer definition of "adequate" ventilation, views as to whether desirable, 97, 565, 876, 894, 898, 1117, 1622, 1722, 1749, 1974, 1980, 2173, 2176, 2339, 2670, 3162, 3979, 4150, 4374, 4376, 4381, 4565, 4576, 5075, 5078, 5361, 5481, 5628, 5791, 6162, 6702, 7671, 7342, 8033, 8722, 9195, 9357, 9418, 9565, 9945, 9963, 10151, 10155.
Air crossings driven in the solid, necessity for, 8582.
Book in which results of monthly tests of quantity and quality might be entered, suggestion as to, 9565, 9767, 9945, 10156.
Difficulties to be contended with, 1571.
Difficulty attached to legal proceedings in cases of defective ventilation, 97, 101, 2670, 3164, 5365.
Cases must be settled by Court of law, 97.
Instance of, 5620.
Prosecutions of owners, 97, 101 and Appendix 4.
Dust accumulation, effect of, on ventilation, 1428.
Explosions due to defective ventilation:
Elba explosion, 19, 97, 4794.
Maclaren colliery explosion, *see that title.*
Number of, *see Appendix Table V.*
Restoration of ventilation after, importance of 8483.
Reversible fan, value of in event of, 3408, 8492.
Fans:
Auxiliary fans underground, views as to, 8727, 8733, 8738, 9058.
General Rule 3 as to, 8727, 9058.
Reversible fan, value of, 3408, 8492.
Stopping or slowing down during night, 2670 6279, 7034.
General Rule 1 as to, *see subheading* Act of Parliament, Section 49, General Rule 1.
General Rule 3 as to fans, 8727, 9058.
General Rule for observance of danger and withdrawal of men, views as to, 97, 565, 830, 883, 888, 1103, 1162, 2683, 2686, 3175, 3348, 4150, 5083, 8033, 8183, 8192, 9196, 9198, 9959, 9964.
Manager, one, to one system of ventilation, views as to, 8741, 8756, 9201, 9204.
Non-fiery mines, 3170.
Plans of ventilation systems, suggestion as to, 9690, 9694.
Prosecutions for defective ventilation, 1424*, 1974.
Analysis of air should be taken, 876, 1852.

Digitized by Google

Ventilation—*cont.*

Safety lamps:

Indications of danger furnished by, 97, 565, 674, 876, 900, 1422, 1975, 2179, 2674, 2678, 2685, 2974, 3166, 3350, 3604, 3979, 3987, 4150, 4373, 4567, 4574, 4710, 4830, 5078, 5365, 6702, 6933, 7523, 7673, 8722, 9565, 9770, 9948.

Analysis of air in case of dispute, suggestion as to, 876, 1852, 9565, 9767, 9945, 10156 10161.

Definition of a clearly defined cap, 4378.

Firedamp only indicated by, 899, 5626.

Hydrogen lamp, percentage of gas shown by, 2677.

Removal of a fall. men might be kept at work on, in spite of a slight cap, 3607.

West Scotland district, cap rarely seen on lamps in, 5075, 5077.

Withdrawal of men in cases of danger, signal for, 97, 565, 830, 883, 888, 900, 1103, 1162, 2678, 2683, 2974, 3166, 3348, 4150, 5083, 6702, 6931, 7523, 7673, 8033, 8183, 8192, 8421, 8722, 9198, 9565, 9569, 9778, 9952.

Inspector, powers as to withdrawal of men advocated, 2683, 3175, 3348.

Oils used, effect of, 97, 99, 5078, 5081, 9567, 9572.

Shale mines, use of safety lamps in, 2657.

Small quantities of gas, tests for, 2276.

Spirit lamp, cap shown on when no gas is present, 2675, 2680.

Standard of ventilation in gaseous and non-gaseous mines, views as to, 880, 1975.

Temperature of mines in relation to, 1236.

Tests of defective ventilation, other than those afforded by safety lamps, 565, 2276, 4158, 4576, 5624.

Wages:

Increase demanded on adoption of safety lamps, 413, 4392, 5090, 5375, 5632, 9576, 9843

Midland district, 9482.

Standard miners' wages, 5342.

Wagons:

Owners' objections to introduction of type advocated by inspector, instance of, 7664.

Prevention of dust in, less important than efficient watering, 5781, 7668, 7670.

Shackles or coupling chains, construction to prevent detachment, suggestion as to, 4464.

Types advocated, value of dust-tight wagons, etc., 91, 561, 1405, 1981, 3595, 3883, 4365, 4367, 4680, 5781, 6700, 7664, 7668, 7670, 8025, 8028, 9278.

Iron wagons, views as to, whether desirable, 1981, 9278.

Whitwood Silkstone Colliery, type used in, 3600.

Watering in-bye or as they go along, views as to, 91, 93, 561, 1406, 1981, 3600, 3879, 4366, 6701, 7670, 9536.

Coal, injury to by, possibility of, 9536, 9563.

Wales:

Accidents, number in, as compared with other districts, 7339.

Language difficulties, 7555, 7560.

(*See also titles* South Wales; Cardiff District; Swansea District; *and* Liverpool and North Wales District.)

WALKER, Mr. W., Inspector for the York and Lincoln district, evidence of, 3413–4246.

Warwickshire:

Explosives Order, magistrate's decision as to meaning of, 9601.

Inspection of mines by mines' officials, Special Rule as to, 9523*, 9527.

Watering:

Acts of Parliament regulating:

Coal Mines Regulation Act, 1887:

Section 42:

Adequacy of views as to, 86.

Subject to arbitration at wish of owner, 86.

Section 49:

General Rule 12 as to, 89, 116, 556 557, 2180, 2182, 7228, 7234.

Coal Mines Regulation Act, 1896:

Section 1:

Provision for Special Rule with regard to, 87.

Recommendation of inspectors as to, 87, 96.

Subject to arbitration at wish of owner, 87.

Ankylostomiasis, watering in relation to, and decision in Westphalia as to, 90, 560.

Bruns, Dr., on, 560.

Blasting in relation to necessity for watering, 551, 1997, 6003.

(*See also title* Shot-firing, *subheading* Watering.)

Cardiff District, *see title* Cardiff District, *subheading* Watering.

Compulsory watering, or general rules as to watering, views as to whether desirable, 86, 548, 553, 557, 870, 871, 1227, 1404, 1618, 1838, 1994, 1998, 2491, 4348, 5790, 6188, 6439, 6662, 7541, 7633.

Exemption, question as to, 6190.

Necessity for watering apart from danger connected with gas and shot firing, 6921.

(*See also subheading* Zone Watering.)

Cost of, 89, 5962, 6034, 6926, 8363, 8371.

Depth of mine in relation to, 8011, 9218, 9221, 10075.

Difficulties and danger of present system, 86, 3588, 9221, 10065:

Effect on roof and floor, 2000, 2493, 6694, 7542, 7639, 8009, 8290.

Summary of points specially requiring consideration, 90.

Drying power of air and degree of humidity, experiment as to in Midland district, 9540.

Durham District, 6662, 6664, 6675, 6686, 6691, 6694, 7544, 8371.

East Scotland district, extent of watering in, and systems employed, 2667, 2962.

Experiments advocated, 5783.

Explosions in relation to:

After-damp can only be prevented by mechanical means, 8698, 9540, 9561.

Arrest of explosions by effective watering, 89, 3601, 5776, 5967, 6304, 6353, 6396, 6431, 7085, 7449, 7654, 8294, 8297, 8400, 8694, 9540, 9561.

Brancepeth, 7470.

Fochriw explosion, *see title* Explosions, *subheading* Fochriw.

Llanbradach explosion, 89.

Maclaren explosion, 89.

National Colliery explosion, *see that title.*

Reduction in numbers of, view as to, 1383.

Seaham, Albion, National, and Cambrian Collieries, explosions at arrested by efficient watering, 6353, 6396, 6431, 7654, 8294, 8297.

Swansea district, report on, 4361, 4370.

Talk-of-the-Hill Colliery, explosion, arrested where dust was silicious, 91.

Timsbury, 7475.

Universal Colliery explosion, 89, 91, 116, 8583.

Wingate, 6662, 7449, 7461, 8680, 8696.

Zone watering as a method of arresting explosions, *see subheading* Zone Watering

Explosives Order, extension advocated: other methods of dealing with dust desirable, 4143, 4146.

Extent desirable, views as to, 870, 1998, 4527, 4764, 4823, 6426, 6924, 7228, 7411, 7634, 7993, 8003, 8384, 8694, 8703.

Thorough watering, importance of, views as to, 6427, 7799, 9537, 9559.

Zone watering, *see that subheading.*

Germany, practice as to, in, 558, 561.

Hose and standpipe system, 1404, 1407, 1981, 2000, 8358, 8363, 8371.

Inspectors of mines:

Knowledge of extent of watering in any particular mine, question as to, 7093.

Reports of in 1902 and 1903, 89.

Digitized by Google

Watering—*cont.*
Liverpool and North Wales district, 1404, 1406.
Manchester and Ireland district, 1981, 1985, 1995, 2000, 2494.
Midland district, 9536, 9540, 9559, 9562.
Newcastle district, 8700.
Roadways, dust in, and views as to watering, 91, 548, 553, 557, 871, 1227, 1280, 1404, 1618, 1838, 2000, 6396, 6426, 6924, 7634, 7993, 8001, 8030, 8384, 8694.
Cost of watering haulage roads, question as to, 6926.
Royal Commission on Accidents from Coal Dust in Mines, 1894, evidence before and recommendations of, 86, 95.
Shot-firing: watering within neighbourhood of a shot, *see title* Shot-firing, *subheading* Watering.
Southern district, 548, 561.
Special Rules as to, views as to, 2341, 6684.
Sprays, use of, 549, 550, 1407, 1981, 2491, 6927, 8358.
Stand-pipe system, 1404, 1407, 1981, 2000, 8358, 8363, 8371.
Swansea district, 4354.
Thorough watering, importance of, 6427, 7799, 9537, 9559.
Wagons and trams, watering, 91, 93, 561, 1406, 1981, 2000, 2493, 3600, 3879, 4366, 6701, 7670, 9536, 9563.
Water-trams, views as to, 8380, 8700.
West Scotland district, 5064, 5069, 5071.
Westrumite as a substitute for, views as to, 6688, 6693.
Cost of, 6690.
York and Lincoln district, 3568, 3603.
Zone watering, importance of, and views as to whether it should be compulsory, 90, 96, 561, 1410, 2000, 2493, 3591, 4348, 4360, 4370, 5767, 6188, 6697, 7645, 8694, 9540, 9561.
After-damp would not be prevented, 8698, 9540, 9561.
Cost of, 5962, 6034.
Length of zone required to arrest an explosion, 96, 5768, 5783, 6698.
Method of carrying out in large collieries, views as to, 6007, 6018.
Underground intercommunication, 7796, 7878.

West Scotland District:
Accidents:
Electricity, accidents from, 5347, 5349.
Enquiries after, adequacy of, views as to, 5427.
Number of, slight decrease in, 5059.
Ankylostomiasis:
Case, supposed, in, 5200, 5654, 5666.
No known instances of, in, 5200.
Sanitary conveniences not provided, 5650.
Charter-master system, survival of, 6456, 5756.
Coal-cutting machinery, increase in use of: amount of coal produced by in 1905, 5553.
Death-rate, 5059, 7339.
Discipline:
Defective, 5534, 5558.
Reports of H.M. inspectors on, 5285.
Extent to which maintained: Reports by Mr. J. M. Ronaldson on defective discipline, 5012.
Searching men before going down mine for matches, pipes, &c., 5297, 5462.
(*See also subheadings* Fines *and* Prosecution of Men.)
Dusty mines:
Number of, and district in which most numerous, 5064.
Watering to prevent dust going down pit, no necessity for in this district, 5359.
Explosives used in, 5386:
Gunpowder, use of, 5111.
Accidents caused by, 5112, 5115.
Fines:
List of fines under the Truck Act, question as to, 4997.
Rarity of, 4983, 4996.
Foreigners working in:
Discipline, good, 5021.

West Scotland District—*cont.*
Haulage:
Accidents from:
Cause of, 5128, 5132.
Number of, and death rate, 5127.
Slight increase in number since introduction of mechanical haulage, 5238.
Runaway tubs, 5408.
Men tramming their own material, question as to provision for, 5641.
Blocks, self-acting, to prevent runaways, use of in some mines, 5130.
Rails, defective condition of, representations made by inspectors to owners in event of, 5133.
Special Rule 81 as to, 5412, 5414.
Inspection of mines by men:
Cost of, borne by the men, 4981.
Extent to which practised, 4976.
Reasons given by men for neglect of, 5282.
Qualifications of men for making inspections, 5253.
Inspection of mines by mines officials:
Adequacy of: views of witness on this point 5029, 5536.
Class of men chosen as firemen, 5045.
Complaints by workmen as to inadequate inspection, witness has had no experience of, 5536.
Districts, size of, not too large for adequate, inspection, 5043, 5050, 5052.
Prosecution of firemen for inadequate inspection, question as to, 5036.
Qualification of firemen, class of men appointed, &c., 5317, 5494.
Roof, defective, report on, neglect to make, 5030, 5321, 5323.
Time, length of, between inspection and beginning of shift, Special Rule as to, 5051.
Wages of firemen, 5340, 5501, 5538.
Inadequacy of, 5046.
Inspectors of mines (Home Office inspectors):
Assistant inspectors:
Adequacy of, with inspector, for number of mines to be inspected, 4964.
Number of inspections undertaken by, 4966.
Clerical work:
Allowance for assistance, adequacy of, 4972.
Undertaken chiefly by inspector himself, 4974.
Number of inspections, 4963, 5454.
Adequacy of, views as to, 4963, 5269.
Omissions, number of, 5457.
Prosecution of men by, in cases of refusal of owners to prosecute, question as to, 5015.
Manager's certificate of competency, examination for:
Working of the system, views as to, 5203.
Number of coal mines in, 5264, 5453.
Output, total, 5555.
Proportion produced by coal-cutting machines, 5553.
Plans:
Abandoned mines, plans not sent in in many instances, 5222.
Accuracy of, views of witness as to, 5213.
Prosecution of firemen for inadequate inspection, question as to, 5035.
Prosecution of men by owners or mines officials:
Advantage of, as compared with fines, views as to, and as to desirability of increased use of this form of punishment, 5000, 5290.
Expenses of defence, payment by Miners' Union, 5024, 5579.
Number of prosecutions, 4987, 5012.
Offences for which prosecuted, 5291.
Procedure as to: prosecutions conducted through Procurator Fiscal, 4988, 5302.
Reluctance of owners to prosecute, 5012, 5015.
Dismissal of men preferred, 4484.
Rescue work and appliances:
Ambulance classes, number of, 5191, 5194.
District stations, non-existent, 5192.
Pneumataphors or breathing apparatus, witness knows of none in, 5198.

Digitized by Google

West Scotland District—*cont.*
Safety lamps:
Disuse desired by manager and men after introduction of, 5087, 5091, 5235.
Examination, defective, small number of accidents due to, 5103.
Explosions due to naked lights, 5085, 5474.
Extent to which used, 5084, 5086.
Inspectors of mines, difficulty in securing introduction of safety lamps, 5370, 5487, 5629.
Number of mines in which naked lights are used, 5463.
Objections of master and men to introduction of, reasons for, 5375.
Screw locks, use of, in, but with lamps of Protector type, 5100.
Special Rules, 5098, 5298.
Sanitary conveniences, 5201, 5650.
Searching of men before going down the mine, 5297, 5462.
Shafts, accidents in:
Banksman or bottomer employed at all mouthings, 5421.
Breaking of winding rope:
Accidents from, 5140.
Safety catches for holding cage in event of, 5150.
Gates or bars at open end of cage, desirability of: accidents from men falling out of cage, 5143.
Midworkings, men falling from, decrease since introduction of Special Rule, 5144, 5419.
Text of rule, 5417.
Number of, from various causes, in Scotland, 5142.
Special Rules for prevention of, 5144, 5417.
Shot-firing:
Electricity not generally used, 5378.
Explosions from dust caused by gunpowder firing, 5112.
Extent of, 5104.
Extent to which practised in, 5551.
Fuses used, 5379.
Miss-fire shots, Special Rule as to, 5110.
Number of shots fired simultaneously (in stone work), 5105.
Special Rules:
Adequacy of, 5338.
Code in force in, 5157.
Consultation of men before introduction of, not practised, 5507, 5530.
Timbering:
Causes, chief, of accidents, 5239.
Prosecution of men for negligence in timbering, 5291, 5391.
Special Rules as to, 5118.
Accidents, number of, not decreased since introduction of, 5388.
Undersea workings:
Falls of roof, not numerous, 5235.
Safety of, views as to, 5229.
Safety lamps, disuse of, desired by masters and men after introduction of, 5235.
Working, method of, 5233.
Ventilation of mines in:
Improvement in, 5075.
Withdrawal of men, inspectors unable to order, in case of an accumulation of gas boarded up in proximity to place where men are working, 5620.
Watering in mines:
Extent to which practised, 5064.
Inspector, pressure by, upon owners in cases of inadequate watering, question as to, 5069.
Special Rules, introduction of, question whether desirable, 5071.
Wagons:
Type used:
Insistence on particular type unnecessary in this district, 5072, 5073.
Watering of coal in, unnecessary, 5074.

West Sleekburn Colliery:
Accident at, time occupied in raising men, 8938, 9151.

Westphalia:
Ankylostomiasis, outbreak in, 224.
(*See also subheading* Watering.)
Cage, number of men in, 6475.
Dust, prevention from going down shaft, question as to, 9453*.

Westphalia—*cont.*
Ventilation, standard of, 10164.
Watering:
Not required in all mines, 9417, 9453*.
Report on by Mr. Atkinson, Dr. Haldane, and Mr. Hall, 224. 5776, 5961, 6008, 6018, 6034, *and Appendix* XV.

West Stanley Mine explosion, cause of, 6425.

Westrumite, experiments with, 6688, 6690, 6693.

Whitwick Colliery, fire in inspector's decision to seal up pit, 9667, 9672.

Whitwood Silkstone Colliery, dust-tight tub adopted in, plan of, 3600.

Wigan Coal and Iron Company:
Bye-law as to drawing props, 2034.
Safety Lamps, testing station at, 1969.

Winding Ropes:
See title Shaft Accidents, *subheading* Breaking of Winding Rope.

Wingate Colliery explosion, 6662, 7449, 7461, 8680, 8696.

Women, employment of, 6531, 7350, 7353, 8513, 9345, 10106.

Woods and Forests, Office of:
Control of undersea workings, 2780.

Woodborn Colliery, accident at, 8664, 8673.

Workington, undersea workings, accident in, 9004.

Wynne v. Forester, 35, 326.

York and Lincoln District:
Accidents in mines:
Causes, chief, of, 3567.
Coroners' inquests:
Adequacy of, 3742, 3744.
Inspector's attendance at, 3418.
Men's representatives, rarity of attendance at, 3493.
Deaths from, number of, 3424, 3564.
Number of, 3565.
Number of explosions, 3601.
Prevention of explosions, question as to precautions taken, 3568.
Agent:
Appointment of, question as to whether custom is universal, 4129.
Qualifications, 3548, 3558, 3562.
Certificates frequently held, 4128.
Ankylostomiasis:
No cases of, 3762.
Sanitary conveniences provided, 3762.
Boilers, examination and cleaning:
Special Rules, amendment advocated, 3711, 3740.
Cadeby Main Colliery, *see that title.*
Checkweighers:
Complaints as to defective facilities, question as to, 4021.
Deduction for dirt:
Agreement between owners and men as to methods of, 4038*, 4045.
Difficulty with men arising from, 3821.
Refusal by checkweighter to undertake, 4022.
Deaths from accidents, 3564.
Increase in (1900–1905), 3424.
District, size of, 3424, 4066.
Division, question as to whether desirable, or increase of assistants, 3430.
Discipline:
Fines, *see that subheading.*
Prosecution of men, *see that subheading.*
Double-shift mines, number of, 3836.
Dust in mines:
Accidents arising from gas and dust, 3565.
Amount of and methods of dealing with, 3568.
Cadeby Main Colliery, *see that title.*
Danger specially great from, in this district, 3585.
Prevention, 3568, 3579, 3603, 7240.
Explosives, purchase by men:
Stocksbridge Mine, instance of, 3662.

Digitized by Google

York and Lincoln Districts—*cont.*
Fines:
Amount of, 3514, 3519.
Disposal of, 3486, 4112.
Advertisement of fact that fines have been inflicted, is obtained by this method, 4112.
Method of inflicting—safeguards against oppressive fining, &c., 4115.
Number of, as compared with prosecutions, 3514, 3517, 3867, 4114.
Foreign or unskilled workmen in mines, question as to, 3957.
Ganister in ganister mines, Special Rules as to 3740.
Haulage accidents:
Causes of, 3707.
Number of, 3707.
Inspection of mines by men:
Time occupied in, 3460, 3918.
Inspection of mines by mines officials:
Districts, size of, 3968, 3978.
System of inspection:
First examination, 3971.
Time of inspection: interval between inspection and end of the shift, 3868.
Inspectors of mines (Home Office inspectors):
Assistant inspectors:
Efficiency of, 3845.
Number of, increase advocated, 3424, 3427, 4079.
Working-class men as, 3786.
Clerical work, 3440.
Allowance for, question as to adequacy of, 3441, 3449.
Possibility of increased inspection if extra allowance were made for clerical work, question as to, 3450.
Transfer to Mining Statistics Branch of Home Office, views as to this suggestion, 3447.
Coroners' inquests, attendance at, 3418.
District, size of, 3424, 3430, 4066.
Number of inspections made by inspector and assistant inspectors, 3426, 3896, 4066.
Proportion taken by inspector, 3431.
Number of, increase will probably be necessary, 3424, 3427, 4079.
System of inspection (by Home Office inspectors) described, 3898, 3925.
Thorough inspection of all mines in the district, question as to possibility of, 3906.
Manager's certificates of competency, examination for, in, 3764, 3772.
Metalliferous mines, certificated managers not required for in Yorkshire, 3779
Number of collieries, 3425, 3429, 3892.
Number of men working together in the working faces, 3694.
Number of persons employed, increase in, 3424, 3428.
Plans, accuracy of, 3793.
Prosecution of men, 3514:
Expense of defence, payment of, by Miners' Union, question as to, 3536.
Extent to which practised as compared with fining, 3514, 3517, 3867, 4114.
Number of prosecutions, 4307.

York and Lincoln Districts—*cont.*
Rescue work and appliances:
Cost of:
Owners' contributions to, 4013.
District stations, 3751.
Appliances at, 3752, 3757, 3758.
Training of men in use of appliances, 3757, 3761.
Availability of all men trained at that station for that pit, 3760.
Number of men having knowledge of, 3745.
Organisation of ambulance league, 3745.
Safety lamps:
Adoption in, 3614.
Special Rule, absence of, except as to treatment of the lamp, 3620.
Examination of lamps in 3631.
Explosion caused by naked lights, number of, 3567.
Screw locks, number of, in use in, 3622, 3624.
Testing:
Proportion of lamps probably discarded, 3828.
Shafts, accidents in:
Breaking of winding rope:
Brown and Co.'s Collieries, accident at, 3720, 3728, 3734.
Recapping of rope:
Cap and socket, description, 3721.
Special Rule as to, 3719.
Safety catches for holding case in case of, not used, 3715.
Gates or bars at open ends of cages:
Automatic gate, adoption of, 3721.
Overwinding:
Number of accidents, small, 3714.
Shot-firing:
Between shifts, practice as to, 3652.
Increase in, since introduction of coal-cutting machinery, 3991.
Miss-fire shots, method of dealing with, 3658.
Special Rules as to, amendment advocated, 3740.
Sinking pits, Special Rules for, 3740.
Size of district, 3424.
Size of mines, output daily, 3429.
Special Rules, amendment advocated, 3740.
Timbering system, 3690, 3698.
Accidents, increase in number of, 3674.
Depth of new mines, great pressure on roof, possible cause of increased number of accidents, 3706.
Drawing of props:
Rule as to suitable appliances, alteration in wording of, advocated, 3702.
Special Rules, 3683, 4684, 6494.
Trammer and coal-hewer, men working as, 3694.
Ventilation:
Safety lamps, indication of danger furnished by, 3604, 3607, 3612.
Wagons, watering in-bye, 3879.
Watering in, 3568.
Increased attention to, advocated, 3603.
Witness giving evidence as to:
Walker, W. W., Inspector of Mines, 3413–4246.

Digitized by Google

Digitized by Google

Digitized by Google

Digitized by Google

This book should be returned to the Library on or before the last date stamped below.

A fine of five cents a day is incurred by retaining it beyond the specified time.

Please return promptly.

6708699

BOOK DUE WID

MAR 12 1980

6281

BOOK DUE WID

6-7-1420

SEP 9 1980

SEP 8 1981

Digitized by Google

Eng 1868.67.5
Minutes of evidence taken before th
Cabot Science 005596911
3 2044 092 026 723